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This study was conducted to determine if there is a difference in time in direct and indirect patient care for registered nurses in a unit managed model and a nurse managed model. The time spent in direct and indirect patient care was observed through a work sampling technique for two matched wards working under the two systems. There was no significant difference between models on direct patient care time. A significantly greater amount of time was spent on indirect patient care under the nurse managed model. The author cautioned against the ability to generalize from these findings. Particular attention was drawn to the possibility that portions of the administrative duties were accomplished during off duty time and non-professional administrative assistance may not be standard across wards.

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A COMPARISON OF NURSES' ACTIVITIES  
UNDER TWO MODELS OF ADMINISTRATION

Naval Hospital  
Bethesda, Maryland

Walter Reed Army Medical Center  
Washington, D.C.

A Graduate Research Project  
Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Health Administration  
by  
CDR Carolyn S. Warren, NC, USN  
August 1985



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## CHAPTER I

### INTRODUCTION

The need for highly trained nurses to care for hospitalized patients is perceived more sharply in today's armamentary of diagnostic and therapeutic tests, procedures, and pharmaceuticals. Due to advances in research and technology, more can be done for diseased and injured patients, and for premature babies, cancer patients and the chronically ill who previously could not be helped.<sup>1</sup> Nurses with specialized knowledge are needed to care for these patients' more intensified needs. Effective nursing care is a major determinant in assisting patients to assume more responsibility for their own health care and in teaching patients' families how to cope with health problems. Studies reveal that registered nurses are capable of the more independent practice necessary in caring for today's more acutely ill hospitalized patient.<sup>2,3</sup>

As their autonomy increases, nurses are finding increased need and satisfaction in focusing on clinical career progression, rather than progressing solely up the hierarchy of supervisory roles in the hospital. Nurses are functioning in expanded clinical roles both within the hospital and in alternative health care systems. Community-based practice, such as in public health departments, occupational health clinics, school and university health programs, and home health and mental health agencies have given clinical nurse specialists opportunities for independent practice. Hospitals are also expanding the

role for registered nurses into varying combinations of four tracks: clinical, administrative, education, and research.<sup>4</sup> Professional associations are developing standards for registered nurses (RNs) to work in new roles such as First Assistants in surgery, nutritional support clinicians, cancer screening examiners, hospice nurses, and consultants in Patient Education and in Patient Advocacy.<sup>5,6,7</sup> Trained to assess physical status, to diagnose, and to perform therapeutic procedures such as lumbar punctures and thoracenteses, the pediatric nurse practitioner is prepared to admit and treat patients in the rural hospital setting.<sup>8</sup> Recognizing that nurses' functions historically overlap, expand, and contract depending upon the availability of physicians, allied health, and institutional support personnel, nurses' activities are a major topic of interest to health care organizations.<sup>9,10</sup>

Nursing professionals face more choices than ever in today's arena of technological, sociological, and financial change. General hospitals are trimming costs and staff to contend with the 40% decrease in government reimbursement since the implementation of the Medicare Diagnostic Related Group (DRG)-based prospective payment system.<sup>11</sup> The largest health care system in the United States, the Veterans Administration, has implemented a DRG-based prospective resource allocation system for operational and educational expenses. Officials at selected military treatment facilities are researching applications of DRGs to their case mix database anticipating a prospective resource allocation system. Nursing professionals' role in this era of financial constraint is to separate nursing costs from other hospital or "hotel" expenses to give recognition to nursing's productivity. Economic and social reasons are driving RNs into more autonomous roles as patient care



managers.<sup>12</sup> Hospitals spend a large portion of their budgets on nursing salaries and want nurses to take care of patients. In addition, nurses spend two to five years learning to take care of patients and want to utilize that knowledge. As a result of the interest in career clinical roles, the professional nursing practice model has developed. Also known as primary nursing, the professional model is the restructuring of nursing activities toward the clinical role in total patient care. In the traditional or functional model of practice, RNs are assigned to the desk or to medications, and paraprofessionals are assigned to patient care.<sup>13</sup> The registered nurse functions in the professional model of nursing practice by implementing the nursing process: assessment of the patient's nursing problems, planning care, giving care, and evaluating the patient's nursing problem status and general well-being. These activities will expedite progress toward the patient's health care goals in an efficient and timely manner. Accountability for patient care management is a priority for nurses in the professional model of nursing practice. The difficulty in most large urban teaching hospitals is that the professional or primary nursing model is not utilized. Many times patients have large numbers of health care team members caring for them, and they feel that no single health care provider takes the total responsibility for their care.

Prior to the recent decade, most registered nurses' salaries were low enough so that hospitals could afford to assign RNs to many functions in the patient care environment.<sup>14</sup> Nurses functioned as housekeepers, sanitary engineers, food workers, inhalation and physical therapists, patient transporters, supply and equipment purchasing overseers, enforcers of regulations, personnel managers, and general

decisionmakers.<sup>15</sup> As services such as housekeeping and clerical support developed, nurses were able to delete some duties, while still being responsible for ensuring these functions were carried out. As cost based federal reimbursements started shrinking, hospitals increased the number of paraprofessional and allied health professional services, since these services could be billed separately. The efficiency of these specialists and the increasing technical expertise required to meet the medical management of patient care changed the patient care environment.<sup>16</sup> These factors dramatically changed the role of RNs, who assumed the leadership role, supervising patient care, coordinating care from an increasing number of ancillary services, and taking on the responsibilities of personnel and ward management.<sup>17</sup>

The utilization of the professionally trained nurse for both patient and unit management is common to this day. However, the chronic shortage of nurses over the period of 1960 to 1980 spurred the development of the concept of using non-nursing personnel to carry out non-nursing functions associated with unit or ward management. (See appendix A) Although the 7.6% national nursing vacancy rate in September 1981, documented the end of the nursing shortage for most institutions, the concept of non-nursing unit managers continued to draw support of some administrators. These nurses saw unit management as a means to relieve nursing of non-nursing tasks, increase nurses' job satisfaction, decrease turnover, increase retention in the profession, and increase productivity of skilled clinicians.<sup>18</sup> The cost effectiveness of devoting RNs to patient care supports the quality assurance issue in providing the appropriate skill level of care for patients without lengthy waiting periods.<sup>19</sup> Unit management is also attractive to hospital administrators

who are interested in providing administrative support to the patient units to increase efficiency and contain costs.

#### Justification of the Research Effort

The Naval Hospital, Bethesda, has had a documented problem with civilian RN vacancies and turnover since 1983. In May 1983, 91 out of 113 authorized positions were filled, for a 19.5% vacancy rate in civilian RN positions. The 91 civilian RNs had dropped from 109 in January 1982, and the Regional Consolidated Civilian Personnel Office (CCPO) documented a 45% turnover rate from 1982 to 1983. By May 1984, the number of civilian RNs on board dropped to 83 out of 106 authorizations, for a vacancy rate of 21.7%. In May 1985, only 66.5 civilian RNs out of 87 authorizations were on board, for a vacancy rate of 23.6%. The turnover rate from June 1984 to June 1985 is documented by CCPO as 33%. This rate is figured on civilian vacancies alone to highlight the problem. If vacancies were figured upon total civilian and military RN authorizations, the vacancy rate would be 0.96%, but this reflects the dissonance between authorizations and actual number of RNs needed according to staffing and workload management formulas. The problem is significant because these vacant civilian nurse authorizations are found mainly in direct patient care areas. Between 1983 and 1985, Nursing Service lost 32 civilian authorizations. The significance of the problem was compounded in special care areas, such as Labor and Delivery. Experienced specialized RNs were not only fewer in number in the total group of applicants, but also they were less likely to wait even the

minimal 2.5 month processing time from application to being brought on board. Military nurses at the Naval Hospital were insufficient in number and specialized experience to provide immediate relief. The hospital mission to continue to provide Graduate Medical Education programs, and thus the need to maintain patient workload to keep the residencies accredited, prevented the reduction of the number of operational beds. In fact, the deliveries increased 27.6% (978 to 1248) over the Fiscal Years 1982 to 1984. Other procedures supported by the Labor and Delivery staff, such as amniocenteses, ultrasounds, and non-stress tests, increased 200% (526 to 1640) during the same period. Although the impact of civilian vacancies was not as critical in other areas of the hospital, each vacancy in the patient care areas caused an increase in workload for the remaining civilian and military nurses. Overtime and extra duty covered the shortage of personnel, but did not help morale or solve the turnover problem. The hospital has had some civilian positions vacant for over a year. Although nursing and hospital administration have systematically increased management monitoring and meet with CCPO weekly, hospital executives think the vacancy and turnover problem is a chronic one. Some of the reasons include: (1) experienced RNs new in the community do not want to wait months to come on board, and by the time the applicant is notified that he or she is hired, the individual has already found employment; (2) Washington, D.C., is a high cost of living area with costly and insufficient numbers of child care facilities available for preschool children; some nurses may be discouraged from employment due to the lack of affordable child care support; (3) benefits such as tuition reduction, and permanent shifts so that individuals may attend school are not offered by the Naval Hospital; other hospitals have

revenue producing continuing education programs which support special programs for their nurses; and (4) career opportunities at the Naval Hospital are limited for civilian nurses interested in grades higher than a GS11; military nurses occupy the supervisory positions with few exceptions; research positions and teaching positions are limited. Seventeen of the 20.5 civilian RN vacancies are at the GS9 level with an annual salary range of \$21,000 to \$28,000 and a requirement to rotate shifts.

Strategies to ameliorate the problem consisted mainly in trading some vacant positions for military authorizations; however, major manpower authorization changes are budgeted on an 8 year Manpower Authorization planning system. During the calendar year 1983, Nursing Service personnel routinely worked 12 hour shifts due to the staffing shortage. In September and October 1983, 76 Hospital Corps personnel and 35 Nurse Corps Ensigns reported aboard, enabling Nursing Service personnel to resume 8 hour shifts in January 1984. At present, military RNs average 240 on board, with only 188 in direct patient care units due to the personnel committed to Quality Assurance, Education and Training, Nurse Anesthetist Programs, Operating Rooms, and Nursing Administration. Staffing formulas accounting for shift rotation, vacation and sick leave, and patient acuity by a classification system, document a shortage of 28.5 RNs. (See appendix B and C) As of June 1985, Workload Management Programs did not document staffing requirements for Labor & Delivery, Recovery Room, Psychiatry, Operating Room, and Out-Patient Department (OPD). OPD and the Emergency Room can document a shortage of 30 RNs based on formulas in the literature. (See appendix D.) The areas not covered by the Workload Management System have difficulty to fill vacancies. In

the literature, hospitals have reported improving their retention rate with scheduling and management innovations. Some ideas that could be considered by the Naval Hospital include: (1) schedules that allow permanent shifts, flextime, increased part-time or job sharing, 10 or 12 hour shifts, or weekend only duty for full-time pay; (2) increasing participatory management styles; (3) introducing primary or professional models of nursing practice with increased clinical career pathways; and (4) increasing orientation, education and training programs, such as offering re-training courses for nurses who have been out of professional practice while raising families.<sup>20</sup>

It would be helpful to analyze nurses perceptions, roles, and job satisfactions, and monitor the turnover or vacancy rate. The current literature contains several major studies of nursing turnover, nurse manager roles and job satisfaction of nursing personnel, including one studying the Army Nurse Corps.<sup>21,22,23,24</sup> In addition, a Navy researcher is studying "Individual, Organizational, and Job Factors Affecting the Job Satisfaction and Retention of Navy Nurse Corps Officers in 1985-86."

Another idea that surfaced in the analysis of the nurse staffing issue was the possibility of creating unit manager positions, utilizing professional administrators to assist the nursing staff with non-nursing duties in ward management. Prior studies have indicated that these duties contribute to job dissatisfaction and turnover.<sup>25</sup> The National Commission for the Study of Nursing and Nursing Education (1970) called for "studies ...of ward clerks, unit managers, self-contained departments, automated services, and other organizational departures that can release nurses from non-nursing functions...."<sup>26</sup> Officials at the Naval Hospital evaluated the service unit management concept at Walter

Reed Army Medical Center (WRAMC) and suggested a study. It was the opinion of the investigator that activities of nurses under service unit management (SUM) should be analyzed, since an important issue raised in the literature is whether RNs that gain time due to a SUM system actually apply the time gained to patient care. An additional concern was that none of the studies in the literature reviewed SUM in the military setting. WRAMC is the only military facility utilizing a service unit management system.

#### The Statement of the Research

The research question is whether registered nurses in a unit management model spend more time in direct and indirect patient care than registered nurses in nurse-managed units. The hypothesis is there will be no difference in the proportion of time spent by RNs in patient care under the two models of administration.

#### Purpose of the Research

The objectives of the investigation were:

1. To compare the activities of RNs under the unit management model of administration with the activities of RNs under a nurse-managed model of administration.

2. To evaluate the influence of the unit management model of administration upon Nursing Services in a military treatment facility.

3. Discuss the aspects of unit management that could positively and negatively impact upon the operation of the Naval Hospital, Bethesda (NHBETH) with regard to the structure, purpose and feasibility of instituting such a system.

#### Criteria

The comparison of nurses activities will be based on percentages of time the nurses are observed in several categories of activities. (See appendix A) Observations of nurses' activities will be made in the two models of administration, at WRAMC and at NHBeth. The differences in proportions of activities in the two models will be analyzed by testing the null hypothesis that the proportion of the nurses' activities in the unit management model is equal to that in the nurse-managed model. The alpha error will be set at 0.05 as the maximum allowable Type I error (rejecting the null hypothesis when it is true). The acceptance of the null hypothesis that the two proportions of activities are equal means that there is insufficient evidence to determine that the nurses' activities under the two models are unequal, or statistically different. The rejection of the null hypothesis means there is sufficient statistical evidence to conclude that the proportion of nurses activities are unequal, therefore different. The increase or decrease in actual



proportion will be discussed by a descriptive method. The conclusion will answer the research question of whether RNs in the unit management model under investigation spend more time in patient care than RNs in the model without unit administrative support.

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#### Assumptions

The investigator made several assumptions in the process of this investigation:

1. The Naval Hospital is interested in ameliorating the shortage of direct care nursing personnel and desires to increase productivity of RNs in patient care activities.

2. Nurse managers would be willing to train non-nursing managers and delegate duties, responsibilities and authority to these individuals.

3. The Naval Hospital could create these unit manager positions accountable for management of non-nursing activities in patient care units.

4. Although primarily concerned with nursing care, registered nurses also function in the role of coordinator of other services to the patient, many of which are non-nursing duties. Concern with these responsibilities will often take precedence over patient care; if delegation of these non-nursing responsibilities increases the available time registered nurses could spend with patients, then the quality of patient care in the hospital would increase.

5. The activities of nurses in each model were assumed to average out to a constant for each model which could be compared statistically as a sampling distribution. This distribution is assumed to be approximated by a normal probability distribution because the sample sizes are larger than 30, and the sample sizes multiplied by the proportions ( $np$ ) are greater than 5. The assumption is based on the Central Limit Theorem, which states that the sample mean can be approximated by a normal probability distribution when the sample size is greater than 30.<sup>27</sup>

6. Assumptions concerning the properties of the variable " $\hat{p}$ ," the proportion of activities measured, were:

a. The population of nursing activities from which a sample is drawn is assumed to be infinite, as nurses provide continuous services 24 hours a day, 7 days a week.

b. The sample proportion " $\hat{p}$ " is a random variable that provides a numerical description of the outcome of the experiment: a simple random sample.

c. The variance is unknown.

d. The sample proportion " $\hat{p}$ " is an unbiased estimator of a population proportion " $p$ ."

#### Limitations

The study is limited in specific application to the Naval Hospital due to the design of the study with two models (having to use an outside activity). The investigator was unable to study a unit before and after the implementation of the ward manger position at the Naval Hospital. An

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additional limitation was an impending major system change of the WRAMC unit administration system creating the timeframe for the research during the months of December 1984 and January 1985. A formal study on recommended changes of the unit administrator system by a designated WRAMC Committee was completed in February 1985 and changes were expected shortly thereafter. The holiday period and the time involved in the process of formal application and approval of the research proposal at WRAMC resulted in the two models being studied 4 weeks apart. This limitation is analyzed under the Discussion section of the paper. Other specific limitations were: (1) the two facilities, though both large military teaching hospitals, could have significant differences other than the ward administration mode that could be discovered in the analysis; (2) the study is limited to a single inpatient medical ward in each model of administration; (3) the perspective is limited to RNs rather than the total nursing staff including the paraprofessionals; (4) the timeframe is limited to the day shift during the week, rather than the weekend, evening, and night shifts; (5) the analysis could reveal possible influences of nurse participant demographics (age, education, experience) and ward activity levels on the study results; (6) during the analysis at WRAMC a staff nurse functioned in the Head Nurse position because the Head Nurse was on vacation; this may have had an influence on the activity levels of both staff nurses and the assigned Charge (or Head) Nurse himself ; (7) the conceptualization of professional nursing activities is a difficult task in theory and in practice; (8) the perceptions of the observer are a result of a finite level of knowledge, skill and experience, which logically may be limiting factors in the investigation.

Recognizing these limitations, the investigator continued the research with an extensive review of studies published over the last 30 years. 14

#### Review of the Literature

The implementation of the concept of unit management has been slow. The first documented model was in a New York Hospital in 1948.<sup>28</sup> By 1960 only 3 hospitals reported having a unit management system; by 1965, only 20 hospitals reported having unit management; by 1969, 133 (under 2%) had unit management; and by 1970, 170 reported using this model. By 1979 approximately 10% of the U.S. hospitals had unit management.<sup>29,30,31</sup> The models described in most of the studies were in large urban teaching hospitals. Their purposes centered on relieving nursing personnel of unwanted administrative tasks, such as ordering supplies, maintaining equipment, attending to timecards, payroll and budget concerns, and being available for problem-solving for patient contact problems. These models varied with regard to their chain of command (structure), and the skill level, responsibility and authority assumed by their managers. The models also varied in strength of leadership and in degree of acceptance by the nursing personnel on the patient care units. Not surprisingly, SUM models varied in the length of time in operation, and whether they were judged successes or failures.

The SUM chain of command was either through nursing administration or directly to hospital administration. Models whose main purpose was to relieve nurses of unwanted, burdensome tasks generally offered lower

salaries, and attracted less educated personnel.<sup>32</sup> These unit managers tended to have too many clerical and messenger duties, too little administrative responsibility and authority, and were at risk for job dissatisfaction.<sup>33</sup> Models whose purpose was to decentralize hospital administration to the patient care units generally had better salaries, better educated managers, greater span of control and authority, and more job satisfaction.<sup>34</sup> Service unit management systems that reported to hospital administration generally lasted. Many began under nursing administration and evolved years later to a model under hospital administration, thereby avoiding a fatal initial conflict with nurses due to role ambiguity and territorial tension. SUM systems that did fail generally had two major problems: (1) the inappropriateness of the unit managers' skill level--unit managers tended to be promoted within the hospital system (such as experienced ward clerks) and not have enough education, or were well educated and frequently left for positions with increased responsibility; and (2) nursing personnel failed to increase time devoted to patient care; SUM systems may have generated time for nurses to develop new clinically oriented patient care roles, but unless the nurses were educated and rewarded for taking on these roles, no change in patient care activities was noted.<sup>35</sup>

Studies of SUM systems were more common in the sixties than in any other decade since the concept developed after 1947. Of the seven studies conducted prior to the sixties, one focused on nurses' activities before and after implementation of a SUM system.<sup>36</sup> In a 1954 study of one patient unit Levine and Yankauer noted that under the SUM model all nursing personnel spent more time in their own level of activities: the head nurse spent 18% more time on an appropriate level of activities and

less on clerical activities; the head nurse also spent 5% more time on inservice and staff development. Staff nurse activities were overall unchanged, but nursing helpers spent 10% more time in patient care. Of the 56 SUM programs written about in the sixties, 4 prompted studies that compared nurses' activities before and after the SUM implementation. The Hawkins study in 1965 specifically identified activities such as bedside care, and noted no change in RN time allocated to this category after the SUM implementation.<sup>37</sup> Schmieding noted little change in her 1966 study of two head nurses in psychiatry units with regard to patient contact time, but did note a decrease in time they spent in non-nursing activities after the SUM was introduced (an average of 12% less time).<sup>38</sup> Murray's study in 1968 noted that under the SUM model, the head nurse spent more time in nursing activities and less in administration, but staff nurses spent more time in administration and less in nursing activities; these activities and times varied on medical and surgical wards, as well as on the day and evening shifts.<sup>39</sup> Aaron's study, also in 1968, concluded that 6 months after the introduction of SUM there was not a significant difference in the direct and indirect nursing care activities, but that the percentage of time nursing personnel spent in all areas of nursing activities increased.<sup>40</sup>

In the seventies, 3 of the 14 studies focused on the evaluation of the SUM concept.<sup>41,42,43</sup> In 1971 Jelinek, Munson and Smith evaluated 32 SUM units and 23 non-SUM units in terms of personnel costs, satisfaction and acceptance, quality of care, patient workload, organizational tension, and the type of SUM organization and activities. Hilgor extensively reviewed the conclusions of 7 studies on SUM in 1972. In 1973 .

Munson summarized the reasons for 5 successes and 9 failures of the SUM systems in a study of 14 hospitals.

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Two of the 6 studies in the eighties were on WRAMC's Unit Administrator System, one on the implementation and the other, an evaluation of the system in preparation for a major SUM system change.<sup>44,45</sup> The carefulness with which WRAMC studied all aspects of the SUM model reveals the importance given the type of personnel placed in ward manager positions, and the need for intermittent monitoring of the system to assure the goals are being met.

Other studies in the literature described the purpose and functions of unit management in specific hospital settings. Five examples are described below. In 1958, 300 bed Salt Lake County General Hospital, Salt Lake City, Utah, used the unit management system to "free nurses for patient care," and successfully implemented a team nursing concept.<sup>46</sup> In 1973, 450 bed Borgess Hospital in Kalamazoo, Michigan matched unit managers with assistant directors of nursing to streamline nursing administration, and improve quality of care. Six Unit Managers shared the responsibility of 70 to 120 beds (2-3 units) with 7 Assistant Directors of Nursing.<sup>47</sup> The evolution of the earliest documented unit management system, was described in 1977 by Farrell and LaCosta. After 25 years, New York Hospital restructured their SUM system from nursing to hospital administration. The goals for the revision were: (1) to increase centralization, standardization, and integration of hospital policies; (2) to develop middle managers for hospital administration careers; and (3) to allow nursing to increase involvement in teaching.<sup>48</sup> Midland Hospital Center, a 305 bed hospital in Midland, Michigan, found after several years in unit management, that the hospital's need for

administrators at the division level greater than the need for managers at the ward level, and reassigned ward manager positions to those of division managers.<sup>49</sup> Similarly, the SUM at Baptist Memorial Hospital in Kansas City, Missouri, is described after a 10 year period in SUM also returning to a centralized administrative model.<sup>50</sup>

An overview of the various studies documents issues common to unit administration models even today. Both Hawkins in 1965 and Hilgor in 1972 noted nurses did not increase direct patient care activities because an RN shortage constrained activities to remain in full-time direction of non-professional patient care personnel. In spite of delegating duties to ward managers, the RN continued to be the coordinator due to expectations of other personnel and perhaps due to the reward system still existing in promoting administration at the expense of patient care activities. The 1971 Jelinek, Munson, and Smith study stated that SUM cost analyses targeted only personnel costs (with no cost-savings), but noted that material and administrative costs were not compared, which could have documented cost-savings.<sup>51</sup> In 1973 Munson addressed the issue of the skill level of unit managers. Poorly educated or inadequately trained managers did not earn the trust of nurses and would not get the appropriate level of authority or responsibility delegated to them. They became "glorified" messengers. The low status of unit managers in these models made interdepartmental requests and other communications difficult.<sup>52</sup> Both Kauffman in 1975 and Braden in 1976 discussed the problem of unit managers lacking knowledge in specialized support areas, and being dependent upon others for information essential to solving problems in ward management. The leadership in some models lacked commitment to train the managers, lacked clarity as to the purpose



of the program, and generally had less chance of success during the implementation and transitional periods. In 1975 Jokerst brought out the issue of the supervision of ward clerks: most SUM managers supervised ward clerks who worked mainly with nurses, creating a personnel management conflict. An additional issue was the susceptibility of ward managers to personnel cutbacks due to budget constraints.<sup>53</sup> Boissoneau noted that although the inpatient units in hospitals had an increased need for coordination and communication, the traditional ward nursing administration structure was relatively inexpensive.<sup>54</sup> As with many systems, the problem with SUM was sometimes the result of inadequate budgeting, resulting in inadequate numbers of personnel, or inadequately trained personnel. Some systems gave nurses freedom to pursue patient care management roles, but other SUM models freed nurses only to discover nurses did not change their roles or increase their time devoted to patient care.<sup>55</sup> The preparation of nursing personnel and their readiness for role change was a critical factor in the success of service unit management.

The literature over the last 5 years described few SUM systems, causing one to assume that the concept was not as popular as in the seventies. However, the investigator found that most of the larger teaching hospitals in Washington, D.C., employ unit managers, and on visiting these facilities, found the SUM systems viable.

## Methodology

The research design was a type of "evaluation" research for the purpose of deciding whether the selected ward under a SUM system fulfilled the main purpose of the SUM system: increased RN time devoted to patient care. If there are no differences in the RN time devoted to patient care in the ward under SUM to RN time observed in a ward under the nurse managed model of ward administration, then the SUM concept would have to be evaluated on another basis besides helping increase RN time devoted to patient care and other alternatives selected to relieve the shortage of direct patient care personnel. In addition to the planning of a 5 day observation period of RNs working under a model of unit administration, the investigator interviewed unit administrators and nursing coordinators at WRAMC. In addition, information about workload and staffing at WRAMC and NHBeth is described in table 1.

The method used to gather data was a work sampling technique described in the nursing literature as early as 1954.<sup>56</sup> Work sampling has been used in the recent investigations by Kelly in 1982 and by Frelin, Misener and Twist in 1983.<sup>57,58</sup> By using definitions of activities similar to the Kelly study, results can be compared and validated. (See appendix A.) Observations were recorded in ten minute segments on the Work Sampling Data Sheet in appendix E.

The selection of the ward in each model entailed closely matching the type of ward, the number of RNs and paraprofessionals, and the patient census. (See table 2) Prior to the data collection, a formal proposal to WRAMC was submitted, following the WRAMC standard research

TABLE 1  
DESCRIPTION OF WORKLOAD AND STAFFING  
WRAMC & NHBETH

Category	WRAMC	NHBETH
Facility opening date	Sep 1977	Dec 1980
Number of operating beds (Jan 85)	960	485
Number of expanded beds	1280	785
Workload (FY 84)		
Admissions	20,798	15,463
Newborns	8,661	1,182
Surgeries	13,812	6,483(inpt) 5,630(outpt)
Inpatient Days	276,544	136,165
Outpatient Visits	747,489	708,881
Emergency Visits	60,437	31,031
Average Daily Pt Load	772	398
Personnel (Jan 85)		
Medical & Dental Corps	542	395
Nurse Corps	342	240
Civilian RNs	191	83
Other Civilian	2972	534
Enlisted	1516	1105
Other	57	18
Total	5620	2375
Nursing Services (Jan 85)		
Ratio of RN:nonRN (ward studied)	1:1.4	1:1.8
Length of Orientation New RN		
Formal	3 weeks	1 week
Preceptor Program	4 months	6 weeks
Ratio RN:patient (ward studied)	1:9	1:7

TABLE 2  
CENSUS AND STAFFING OF SELECTED WARDS  
NHBETH & WRAMC  
(Dec 1984)

Type of Ward	Average Census	Bed Capacity	RN	Paraprof
NHBETH				
Cardiothoracic	20	20	8	14
Orthopedic	40	40	13	25
General Surgery E	40	40	15	28
General Surgery W	38	38	12	19
Neurosurgery	41	41	13	30
Gen Medicine	36	36	16	26
WRAMC				
Cardiothoracic (includes 4 ICU)	18	18	19	14
Orthopedic	43	48	11	15
Neuro/Gen Surgery	40	48	13	14
Gen Medicine	36	48	15	16

Reference: MAJ Dena Norton, ANC, USA, Nursing Research Department,  
Walter Reed Army Medical Center.

protocol guidelines. The proposal was approved by the Nursing Service Director and the Chief of Nursing Research. Samples of the Participant Consent Explanation and the Volunteer Agreement Affidavit are attached in appendices F and G. These forms and a brief explanation were given to the nurses on the selected ward in each model. Charge nurses filled out Daily Ward Activity Summaries which are described on table 3. Just prior to the observation week a short background summary was obtained from each participating RN. (See table 4.) A decision was made to include only RNs assigned to the ward after orientation, and to eliminate observations of the parttime clinical instructor.

The observation period was 5 consecutive weekdays beginning at 0645, and ending when the dayshift nursing teams had any one member leave, usually at 1530 or 1545. Every 10 minutes the investigator would come out of an office space, and make a quick round about the ward, recording the activity first observed for each RN. A total of 1473 ten-minute segments were monitored at NHBeth, equal to 245.5 nursing hours. A total of 1173 ten-minute segments were monitored at WRAMC, for a total of 195.5 nursing hours. The number of ten-minute segments were summarized in percentages or activities for the charge nurse alone, the staff nurses alone, and for the charge nurse and staff nurses combined for each model. See tables 5 through 14. Nurses' activities in the two models are compared with charge nurses alone, staff nurses alone, and charge nurse and staff nurses combined in tables 15 and 16. The percentages, in decimal form, were analyzed for a comparison of the two models by testing the hypothesis that the two population proportions (of each category of activity) were equal at a 5% level of significance. (See appendix H) The results of the hypothesis tests are in table 17.

TABLE 3

24

WARD ACTIVITY SUMMARIES<sup>1</sup>

Workload	WRAMC	NHBETH
Average Percent of Patients by their Classification <sup>2</sup>		
I	18.7%	16.4%
II	70.0%	41.8%
III	10.7%	25.5%
IV	.06%	13.0%
V	0	0
VI	0	0
Average Daily Census		
During Investigation	34.8	35.4
During Dec 1984 <sup>3</sup>	35.5	32.1
During Jan 1985	40.5	32.5
Census Range(during study)	28-38	35-36
Patient Numbers(during study)		
SL/VSL Range	3-4	3-5
Admissions/AOWs	2-4	0-4
Discharges/TOWs/Deaths	2-7	1-5
Major Procedures	0-4	2-4
Emergencies	0	0
Staffing		
RNs	3-5	4-6
Paraprofessionals	4-7	5-13
RN: Patient Ratio	1.1:10	1.4:10

<sup>1</sup>Reference: Ward Activity Summary Data noted on Fill-In Sheet given to the Charge Nurse at the end of each shift.

<sup>2</sup>Patient Classification Systems are the same according to the Nursing Research Departments. The rating depends upon a point system assigned by the Team Leader (RN assigned to patient).

<sup>3</sup>Obtained from WRAMC Patient Administration Department

TABLE 4  
DESCRIPTION OF THE  
PARTICIPANTS' BACKGROUNDS

Background	WRAMC	NHBETH
Age		
Range	23-36 yrs	22-38 yrs
Median	25 yrs	23 yrs
Average	27 yrs	27.6 yrs
Experience		
Range	0.17-4.5 yrs	0.4-17 yrs
Median	1.63 yrs	2 yrs
Average	3.62 yrs	5.8 yrs
Highest Nursing Education		
Diploma	0	2
BSN	5	5
MSN	1	0

Reference: Background Summaries obtained by the Participant  
Filling in short fill-in sheet prior to the research  
study.

TABLE 5

OBSERVATIONS OF CHARGE NURSE & STAFF NURSES' ACTIVITIES AT NHBETH  
(10 minute segments)

Category	Day 1		Day 2		Day 3		Day 4		Day 5	
	C	S	C	S	C	S	C	S	C	S
Direct Patient Care	1	20	0	28	1	18	0	15	0	8
Other Direct Care	3	27	1	38	1	22	2	31	1	25
Indirect Care, Info	15	36	20	62	29	92	22	102	16	88
Other Indirect Care	25	89	12	85	7	52	1	71	1	37
Prof/Staff Dev	1	4	1	6	0	0	0	0	1	4
Personnel, Other	1	0	6	16	10	5	13	6	12	20
Environment	0	2	0	0	0	1	1	2	2	0
Supplies/Equipment	0	2	0	2	1	0	0	1	5	1
Other Unit Admin	4	5	4	1	1	0	8	1	8	3
Military Functions	0	0	0	0	0	0	0	0	0	0
Personal	6	26	7	35	5	29	5	31	8	26
Delay	0	4	0	0	0	0	0	0	0	0
Nursing Policies	0	0	0	0	0	0	0	0	0	0
Committee Work	0	0	0	0	0	0	0	0	0	0
Travel	0	9	2	4	0	1	1	5	0	4
Sub-Total	56 + 224		53 + 277		55 + 220		53 + 265		54 + 216	
Total	280		330		275		318		270	
Grand Total	1473									

Key: C = Charge Nurse

S = Staff Nurse



TABLE 6

PERCENTAGES OF NURSES' ACTIVITIES  
COMBINED CHARGE & STAFF NURSES AT NHBETH

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	7.50	8.49	6.91	4.72	2.96	6.12
Other Direct Care	10.71	11.82	8.36	10.38	9.63	10.18
Indirect Care, Info	18.21	24.85	44.00	38.99	38.52	32.91
Other Indirect Care	40.72	29.39	21.45	22.64	14.07	25.65
Prof/Staff Dev	1.79	2.12	0	0	1.85	1.15
Personnel, Other	0.36	6.67	5.45	5.98	11.85	6.06
Environment	0.71	0	0.36	0.94	0.74	0.55
Supplies/Equipment	0.71	0.61	0.36	0.31	2.22	0.84
Other Unit Admin	3.22	1.52	0.36	2.83	4.07	2.40
Military Functions	0	0	0	0	0	0
Personal	11.43	12.73	12.36	11.32	12.59	12.09
Delay	1.43	0	0	0	0	0.29
Nursing Policies	0	0	0	0	0	0
Committee Work	0	0	0	0	0	0
Travel	3.21	1.82	0.36	1.89	1.48	1.75
Total	100.00	100.02	99.97	100.00	99.98	99.99

TABLE 7  
PERCENTAGES OF NURSES' ACTIVITIES  
OF CHARGE NURSE AT NHBETH

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	1.79	0	1.82	0	0	0.72
Other Direct Care	5.36	1.89	1.82	3.77	1.85	2.94
Indirect Care, Info	26.79	37.74	52.73	41.51	29.63	37.68
Other Indirect Care	44.64	22.64	12.73	1.89	1.85	16.75
Prof/Staff Dev	1.79	1.89	0	0	1.85	1.11
Personnel, Other	1.79	11.32	18.18	24.53	22.22	15.61
Environment	0	0	0	1.89	3.70	1.12
Supplies/Equipment	0	0	1.82	0	9.26	2.22
Other Unit Admin	7.14	7.55	1.82	15.09	14.82	9.28
Military Functions	0	0	0	0	0	0
Personal	10.71	13.21	9.09	9.43	14.82	11.45
Delay	0	0	0	0	0	0
Nursing Policies	0	0	0	0	0	0
Committee Work	0	0	0	0	0	0
Travel	0	3.77	0	1.89	0	1.13
Total	100.01	100.01	100.01	100.00	100.00	100.01

TABLE 8  
PERCENTAGES OF NURSES' ACTIVITIES  
OF STAFF NURSES (ALONE) AT NHBETH

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	8.93	10.11	8.18	5.66	3.70	7.32
Other Direct Care	12.05	13.72	10.00	11.70	11.57	11.81
Indirect Care, Info	16.07	22.38	41.82	38.49	40.74	31.90
Other Indirect Care	39.73	30.69	23.64	26.79	17.13	27.60
Prof/Staff Dev	1.79	2.17	0	0	1.85	1.16
Personnel, Other	0	5.78	2.27	2.26	9.26	3.91
Environment	0.89	0	0.46	0.76	0	0.42
Supplies/Equipment	0.89	0.72	0	0.38	0.46	0.49
Other Unit Admin	2.23	0.36	0	0.38	1.39	0.87
Military Functions	0	0	0	0	0	0
Personal	11.61	12.64	13.18	11.70	12.04	12.23
Delay	1.79	0	0	0	0	0.36
Nursing Policies	0	0	0	0	0	0
Committee Work	0	0	0	0	0	0
Travel	4.02	1.44	0.46	1.89	1.85	1.93
Total	100.00	100.01	100.01	100.01	99.99	100.00

TABLE 9

PERCENTAGES OF NURSES' ACTIVITIES  
COMPARING NHBETH CHARGE NURSE TO  
STAFF NURSES (PERCENTAGES SEPARATED)

Category	CHARGE NURSE	STAFF NURSES
Direct Patient Care	0.72	7.32
Other Direct Care	2.94	11.81
Indirect Care, Info	37.68	31.90
Other Indirect Care	16.75	27.60
Prof/Staff Dev	1.11	1.16
Personnel, Other	15.61	3.91
Environment	1.12	0.42
Supplies/Equipment	2.22	0.49
Other Unit Admin	9.28	0.87
Military Functions	0	0
Personal	11.45	12.23
Delay	0	0.36
Nursing Policies	0	0
Committee Work	0	0
Travel	1.13	1.93
Total	100.00%	100.00%

TABLE 10

OBSERVATIONS OF CHARGE NURSE & STAFF NURSES' ACTIVITIES AT WRAMC  
(10 minute segments)

Category	Day 1		Day 2		Day 3		Day 4		Day 5	
	C	S	C	S	C	S	C	S	C	S
Direct Patient Care	0	7	0	14	1	31	0	9	2	32
Other Direct Care	0	19	1	36	0	22	1	12	2	9
Indirect Care, Info	12	34	11	51	15	40	9	44	20	26
Other Indirect Care	7	69	10	61	13	50	5	55	19	27
Prof/Staff Dev	0	1	0	0	0	41	0	5	0	47
Personnel, Other	0	1	11	0	0	0	0	1	0	0
Environment	0	0	0	3	0	0	0	4	0	0
Supplies/Equipment	0	1	0	1	0	2	1	0	0	0
Other Unit Admin	25	2	15	3	16	6	28	8	4	7
Military Functions	0	0	0	0	0	0	0	0	0	0
Personal	8	18	5	23	4	25	7	13	0	11
Delay	0	4	0	0	1	0	0	0	0	0
Nursing Policies	0	0	0	0	0	0	0	0	0	0
Committee Work	0	0	0	15	5	0	0	0	5	0
Travel	0	0	1	9	0	3	1	5	1	0
Sub-Total	52 + 156		54 + 216		55 + 220		52 + 156		53 + 159	
Total	208		270		275		208		212	
Grand Total			1173							

Key: C = Charge Nurse

S = Staff Nurse

TABLE 11

PERCENTAGES OF NURSES' ACTIVITIES  
COMBINED CHARGE & STAFF NURSES AT WRAMC

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	3.37	5.19	11.64	4.34	16.04	8.11
Other Direct Care	9.14	13.70	8.00	6.25	5.19	8.46
Indirect Care, Info	22.12	22.96	20.00	25.48	21.70	22.45
Other Indirect Care	36.54	26.30	22.91	28.85	21.70	27.26
Prof/Staff Dev	0.48	0	14.91	2.40	22.17	7.99
Personnel, Other	0.48	4.07	0	0.48	0	1.01
Environment	0	1.11	0	1.92	0	0.61
Supplies/Equipment	0.48	0.37	0.73	0.48	0	0.41
Other Unit Admin	12.98	6.67	8.00	17.31	5.19	10.03
Military Functions	0	0	0	0	0	0
Personal	12.50	10.37	10.55	9.62	5.19	9.64
Delay	1.92	0	0.36	0	0	0.46
Nursing Policies	0	0	0	0	0	0
Committee Work	0	5.56	1.82	0	2.36	1.95
Travel	0	3.70	1.09	2.89	0.47	1.63
Total	100.01	100.00	100.01	100.02	100.01	100.01

TABLE 12  
PERCENTAGES OF NURSES' ACTIVITIES  
OF CHARGE NURSE AT WRAMC

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	0	0	1.82	0	3.77	1.12
Other Direct Care	0	1.85	0	1.92	3.77	1.51
Indirect Care, Info	23.08	20.37	27.27	17.31	37.74	25.15
Other Indirect Care	13.46	18.52	23.64	9.62	35.85	20.22
Prof/Staff Dev	0	0	0	0	0	0
Personnel, Other	0	20.37	0	0	0	4.07
Environment	0	0	0	0	0	0
Supplies/Equipment	0	0	0	1.92	0	0.38
Other Unit Admin	48.08	27.78	29.09	53.85	7.55	33.27
Military Functions	0	0	0	0	0	0
Personal	15.39	9.26	7.27	13.46	0	9.08
Delay	0	0	1.82	0	0	0.36
Nursing Policies	0	0	0	0	0	0
Committee Work	0	0	9.09	0	9.43	3.71
Travel	0	1.85	0	1.92	1.89	1.13
Total	100.01	100.00	100.00	100.00	100.00	100.00

TABLE 13  
 PERCENTAGES OF NURSES' ACTIVITIES  
 OF STAFF NURSES (ALONE) AT WRAMC

Category	Day 1	Day 2	Day 3	Day 4	Day 5	AVG
Direct Patient Care	4.49	6.48	14.09	5.77	20.13	10.19
Other Direct Care	12.18	16.67	10.00	7.69	5.66	10.44
Indirect Care, Info	21.80	23.61	18.18	28.21	16.35	21.63
Other Indirect Care	44.23	28.24	22.73	35.26	16.98	29.49
Prof/Staff Dev	0.64	0	18.64	3.21	29.56	10.41
Personnel, Other	0.64	0	0	0.64	0	0.26
Environment	0	1.39	0	2.56	0	0.79
Supplies/Equipment	0.64	0.46	0.91	0	0	0.40
Other Unit Admin	1.28	1.39	2.73	5.13	4.40	2.99
Military Functions	0	0	0	0	0	0
Personal	11.54	10.65	11.36	8.33	6.92	9.76
Delay	2.56	0	0	0	0	0.51
Nursing Policies	0	0	0	0	0	0
Committee Work	0	6.94	0	0	0	1.39
Travel	0	4.17	1.36	3.21	0	1.75
Total	100.00	100.00	100.00	100.01	100.00	100.01



TABLE 14

PERCENTAGES OF NURSES' ACTIVITIES  
COMPARING WPAAC CHARGE NURSE TO  
STAFF NURSES (PERCENTAGES SEPARATED)

Category	CHARGE NURSE	STAFF NURSES
Direct Patient Care	1.12	10.19
Other Direct Care	1.51	10.44
Indirect Care, Info	25.51	21.63
Other Indirect Care	20.22	29.49
Prof/Staff Dev	0	10.41
Personnel, Other	4.07	0.26
Environment	0	0.79
Supplies/Equipment	0.38	0.40
Other Unit Admin	33.27	2.99
Military Functions	0	0
Personal	9.08	9.76
Delay	0	0.51
Nursing Policies	0	0
Committee Work	3.71	1.39
Travel	1.13	1.75
Total	100.00%	100.01%

TABLE 15

PERCENTAGES OF NURSES' ACTIVITIES  
OF COMBINED CHARGE & STAFF NURSES  
AT WRAMC AND NHBETH

Category	WRAMC	NHBETH
Direct Patient Care	8.11	6.12
Other Direct Care	8.46	10.18
Indirect Care, Info	22.45	32.91
Other Indirect Care	27.26	25.65
Prof/Staff Dev	7.99	1.15
Personnel, Other	1.01	6.06
Environment	0.61	0.55
Supplies/Equipment	0.41	0.84
Other Unit Admin	10.03	2.40
Military Functions	0	0
Personal	9.64	12.09
Delay	0.46	0.29
Nursing Policies	0	0
Committee Work	1.95	0
Travel	1.63	1.75
Total	100.01	99.99

TABLE 16

PERCENTAGES OF NURSES' ACTIVITIES  
OF CHARGE NURSES AT WRAMC & NHBETH

Category	CHARGE NURSE WRAMC	CHARGE NURSE NHBETH
Direct Patient Care	1.12	0.72
Other Direct Care	1.51	2.94
Indirect Care, Info	25.15	37.68
Other Indirect Care	20.22	16.75
Prof/Staff Dev	0	1.11
Personnel, Other	4.07	15.61
Environment	0	1.12
Supplies/Equipment	0.38	2.22
Other Unit Admin	33.27	9.28
Military Functions	0	0
Personal	9.08	11.45
Delay	0.36	0
Nursing Policies	0	0
Committee Work	3.71	0
Travel	1.13	1.13
Total	100.00%	100.01%

TABLE 17

PERCENTAGES OF NURSES' ACTIVITIES  
OF STAFF NURSES AT WRAMC & NHBETH

Category	STAFF NURSES WRAMC	STAFF NURSES NHBETH
Direct Patient Care	10.19	7.32
Other Direct Care	10.44	11.81
Indirect Care, Info	21.63	31.90
Other Indirect Care	29.49	27.60
Prof/Staff Dev	10.41	1.16
Personnel, Other	0.26	3.91
Environment	0.79	0.42
Supplies/Equipment	0.40	0.49
Other Unit Admin	2.99	0.87
Military Functions	0	0
Personal	9.76	12.23
Delay	0.51	0.36
Nursing Policies	0	0
Committee Work	1.39	0
Travel	1.75	1.93
Total	100.01%	100.00%

The comparison of nurses' activities under the two models, and the impact of the SUM system on nursing services and on the Naval Hospital are discussed in the next section.

- <sup>1</sup>Mary Armstrong et al., "Lies, Damn Lies and Nursing Statistics," Nursing Times 80 (22 February 1984): 32.
- <sup>2</sup>Julie Franz, "Challenge for Nursing: Hiking Productivity Without Lowering Quality of Care," Modern Health Care 14 (September 1984): 61.
- <sup>3</sup>Jirdos Griffith, "Nursing Practice; Substitute or Complement According to Economic Theory," Nursing Economics 2 (March-April 1984): 105.
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## CHAPTER II

### DISCUSSION

The discussion will address the investigation in three sections: the first section will compare the nursing units studied in terms of their general routines and support systems, and analyze the differences in the nurses' activities observed in the study; the second section will address the impact of service unit management on nursing services; the third section will consider the impact of service unit management upon the Naval Hospital with regard to the structure, purpose and feasibility of instituting such a system.

#### Comparison of the Models Studied

As stated in the section discussing the methodology, the investigator selected the wards that matched the closest in the two facilities. However, in the process of the study, a more detailed comparison revealed some variation in the models selected. WRAMC is larger, with an average daily census of 725 to 775. The Naval Hospital has an average daily census of 425 to 475. Although the selected medical wards had the same average daily census for the week of observation, approximately 35 patients, the historical average daily census for the Naval Hospital medical ward is 32 and for the WRAMC medical ward is 38 patients. During the period of study, the number of patients was



slightly lower than the normal, (28) because the first day of observation was the first day back from a holiday routine. The next day revealed normal census levels as clinics had resumed normal schedules the first day of the observation period, and admissions had brought patient numbers back to normal. The WRAMC medical ward experienced a reasonably normal workload because the other medical ward had closed for the holiday period, so that all medical patients were being cared for on the selected ward. During the week of observation the workload returned to normal and the other medical ward opened to accommodate increased patient numbers; therefore, dramatic shifts in workload for the selected ward were not experienced in spite of the preceding holidays.

Another concern was the 4 week separation in timing of the observation weeks in the 2 models: 4 weeks apart would not be a significant amount of time in itself. However, with the week at WRAMC as the first week back from holiday routine, as stated above, the workload could have been unusual, which could have impacted upon the observations of nursing activities. The objective in the investigation was to match the number of RN staff and the average number of patients in the two models of administrative support, which was accomplished. But to increase the universality of the research, one strives for the perfect time when staffing conditions and workload are normal. The investigation must consider whether nurses were used to the workload, or determine if it was heavier or lighter than normal, so that observations may be applicable in general. For the Naval Hospital, the ward under observation historically has over 90% occupancy. Because of the normally high occupancy year-round, one could expect a normal workload during any non-holiday work week at the Naval Hospital. To predict normal workload

of a selected ward based on the hospital average daily patient census would not be particularly helpful, since the medical ward's workload is not generally tied into or elective admissions or surgical schedules, but has a high percentage of acutely ill patients with long-term or chronic illness. Another reason selection of the research time based on expected hospital workload is not helpful, is that the high and low patient census months are not predictable from one model to the next model, nor from one year to the next year. For example, at NHBETH December 1983 was the low average daily census month for calendar year 1983, but December 1984 was the high average daily census month for calendar year 1984. At WRAMC, December had the lowest census in calendar years 1983 and 1984, and the highest census months were September in 1983 and May in 1984. January did have relatively normal patient census averages for the last 3 years at WRAMC. The investigator noted that the charge and staff nurses were engaged in expected kinds and appropriate levels of activity throughout the observation periods, and charge nurses stated that the staffing and ward activity levels were normal, so the investigation proceeded. Tables 18 through 21 list the significant statistical findings, and the following discussion analyzes the meaning of the data.

Both WRAMC and NHBETH were built within a few years of each other, opening in 1977 and 1980, respectively. The physical plant characteristics were similar in terms of structural designs. Both wards have a 48 bed capacity although NHBETH has only 36 beds authorized. Patient rooms are mainly semi-private, with several private rooms, and two 4-bed rooms. They both had centrally located supply rooms, controlled medicinals room, physician team office space, supply storage space, and a kitchen. Staff and patient lounges, and administrative office spaces

TABLE 18

STATISTICALLY SIGNIFICANT DIFFERENCE\*  
 ACCORDING TO HYPOTHESIS TESTING OF  
 THE EQUALITY OF PROPORTIONS OF  
 CHARGE NURSES' ACTIVITIES

Category	WRAMC	NHBETH	$H_0: p_A = p_B$	p value*
Direct Care	0.0112	0.0072	accept	--
Other Direct Care	0.0151	0.0294	reject	0.02
Indirect Care	0.2515	0.3768	reject	0.002
Other Indirect Care	0.2022	0.1675	reject	0.02
Prof/Staff Dev	0	0.0111	reject	0.002
Personnel, Other	0.0407	0.1561	reject	0.002
Environment	0	0.0112	reject	0.002
Supplies/Equipment	0.0033	0.0222	reject	0.002
Other Unit Admin	0.3327	0.0923	reject	0.002
Military Functions	0	0	--	--
Personal	0.0908	0.1145	reject	0.05
Delay	0.0036	0	--	--
Nursing Policies	0	0	--	--
Committee Work	0.0371	0	reject	0.002
Travel	0.0113	0.0113	accept	--

TABLE 19

STATISTICALLY SIGNIFICANT DIFFERENCE\*  
 ACCORDING TO HYPOTHESIS TESTING OF  
 THE EQUALITY OF PROPORTIONS OF  
 STAFF NURSES' ACTIVITIES

Category	WRAMC	NHBETH	$H_0: p_W = p_B$	p value*
Direct Care	0.1019	0.0732	reject	0.01
Other Direct Care	0.1044	0.1181	accept	--
Indirect Care	0.2163	0.3190	reject	.002
Other Indirect Care	0.2949	0.2750	accept	--
Prof/Staff Dev	0.1041	0.0116	reject	0.002
Personnel, Other	0.0026	0.0391	reject	0.002
Environment	0.0079	0.0042	--	--
Supplies/Equipment	0.0040	0.0049	--	--
Other Unit Admin	0.0299	0.0037	reject	0.002
Military Functions	0	0	--	--
Personal	0.0976	0.1223	reject	0.04
Delay	0.0051	0.0036	--	--
Nursing Policies	0	0	--	--
Committee Work	0.0139	0	reject	0.002
Travel	0.0175	0.0193	--	--

TABLE 20

STATISTICALLY SIGNIFICANT DIFFERENCE\*  
 ACCORDING TO HYPOTHESIS TESTING OF  
 THE EQUALITY OF PROPORTIONS OF  
 COMBINED CHARGE & STAFF NURSES' ACTIVITIES  
 WITH COMBINED CATEGORIES

Category	WRAMC	NHBETH	$H_{0P_W=P_B}$	p value*
Direct + Other Direct	0.166	0.163	accept	--
Indirect + Other Indir.	0.497	0.586	reject	0.002
Combined Direct, Other Direct, Indirect, Other Indirect	0.6628	0.7486	reject	0.002

TABLE 21

STATISTICALLY SIGNIFICANT DIFFERENCE\*  
 ACCORDING TO HYPOTHESIS TESTING OF  
 THE EQUALITY OF PROPORTIONS OF  
 COMBINED CATEGORIES OF NURSES' ACTIVITIES

Category	WRAMC	NHBETH	$H_{0P_W=P_B}$	p value*
Charge Nurse Direct + Other Direct	0.0263	0.0366	accept	--
Indirect + Other Indir.	0.4537	0.5443	reject	0.002
Staff Nurses Direct + Other Direct	0.2063	0.1913	accept	--
Indirect + Other Indir.	0.5112	0.5950	reject	0.002
Charge Nurse: Direct, Other Direct, Indirect Other Indirect	0.4800	0.5809	reject	0.002
Staff Nurses: Direct, Other Direct, Indirect Other Indirect	0.7175	0.7863	reject	0.002

were similar in layout at the ends of the hallways. Both had automated cart elevators, but WRAMC used the elevator only for food carts at the time of the study, whereas NHBETH used the elevators for supply, linen, food, and trash carts. WRAMC had a small central reception desk (two ward clerks could comfortably work there) and chart racks were located in the hallways along with three medication carts, and three small desks arranged for each of the three nursing teams. NHBETH had the large central nursing station with two medication carts located on each side, and a large central desk within the nursing station for charting.

Both models used the team method of nursing practice, in which an RN team leader takes responsibility for a group of patients. Team leaders from both models functioned at desk, medication and patient care roles in a flexible manner. The Charge Nurses on both units took care of nurses' scheduling and schedule changes. A staff nurse at NHBETH made out the enlisted staff schedule, whereas the Wardmaster made the schedule out at WRAMC. At NHBETH a staff RN is designated to be a Clinical Instructor and is assigned to three wards; her duties included orienting new personnel to medications. At WRAMC the Team Leader oriented new personnel to medications.

The enlisted staff on the wards had similar functions: WRAMC has a senior (E-6/7) enlisted staff Wardmaster on each ward to orient, teach, and evaluate the enlisted staff, or paraprofessionals. One logistics technician (log tech), formally trained in supply but not in medical terminology, was responsible for ordering and bringing supplies to the ward. Log Techs were usually E-4's, and covered the ward Monday through Friday on day and evening shifts, and on the day shift only on weekends. At NHBETH, the Wardmaster and Log Tech counterparts were the Ward Senior

Corpsperson (to order supplies and evaluate paraprofessionals' performance), and the Assistant Clinical Instructor (to orient and teach the Corpspersonnel), who covered three wards the same as the RN Clinical Instructor. The experience of these Corpspersonnel, usually E-4 in grade, is based on a 10 week Basic course and on-the-job training. Hospital support systems varied in four instances. The first variation is that NHBETH had a contracted patient escort system, and WRAMC did not. The impact upon the investigation of nursing activities was expected to be a function of the number of times patients are taken off the ward for appointments, and the number of times an RN transported the patient as opposed to a non-RN. Observations of RNs in each model revealed no significant differences in "Travel" activities by RNs as both charge nurses were observed at 1.13%, and both groups of staff nurses were observed at less than 2%. The observer noted that if an RN transported a patient, it was perhaps combined with another errand, or planned trip, such as a committee meeting.

A second variation was the supply system, in which the Unit Manager at WRAMC supervised the Log Techs, who ordered and retrieved the necessary ward supplies. WRAMC Log Techs had to be oriented to the patient care environment, and probably required more initial supervision than their counterpart at NHBETH, the Ward Senior Corpsperson, who is experienced in the names and uses of medical supplies. NHBETH also has a fully operational automated cart system in which at par levels of supplies arrive on the ward daily and used carts are placed on elevators to return to CPD also on a daily basis. The variation in supply systems are not expected to impact greatly upon nursing activities unless a major supply problem occurs. At WRAMC, the Unit Manager, Wardmaster, or

the Log Tech could attend to supply problems. At NHBETH, the Charge Nurse, the Senior Corpsperson or Centralized Processing and Distribution (CPD) department personnel could manage supply problems. Both models have routine support systems that minimize RN time spent upon ward supply acquisition.

The third variation is that ward clerks at WRAMC work day shifts on the weekends, whereas at NHBETH they do not cover weekends. This was not expected to impact upon the investigation since the observation period included only weekdays. Both wards have day and evening shift coverage Monday through Friday. The clinical supervision of the ward clerks is carried out by the team leaders in each model. Personnel management is assigned to the unit manager at WRAMC and to the charge nurse at NHBETH. The observation period did not reveal any formal personnel or training activities between the RNs and the ward clerks. However, the NHBETH Charge Nurse had one occasion to document an unauthorized work absence by a ward clerk, therefore, probably had some occasion to counsel the employee at a later date. The percentages of charge nurse activities involved in personnel management were 4.1% at WRAMC, and 15.6% at NHBETH. The staff nurse activities in the personnel category were 0.3% at WRAMC and 4% at NHBETH. Both were statistically significant by the hypothesis testing at a 5% level of significance. The greater amount of time spent in personnel activities, which includes staff meetings and work planning, is somewhat expected due to the larger total number of personnel working at NHBETH (9 to 19 RN plus non-RNs versus 7 to 12 RN and non-RNs at WRAMC) during the observation period. NHBETH's two large nursing teams may have been responsible for the greater amount of charge nurse time spent in personnel activities



compared to the personnel requirements of the three small teams (one RN and one paraprofessional) at WRAMC. The categorization of nursing activities was not sensitive enough to detect the percentage of time involved in nurse and paraprofessional personnel management as opposed to clerical personnel management. Since the ward clerk is the only non-direct nursing care person working for the NHBETH Charge Nurse, the percentage of time is not expected to be large. The impact of this difference is not expected to be great upon nursing activities. In both models the nurses supervise the ward clerks by being in the same location and working with the same charts and patients. In the unit management model, this close working relationship can set up conflicts when the unit manager is responsible for management rather than the Head Nurse, who clinically supervises the clerk.

The fourth and last variation is probably the most important: the Workload Management System for Nursing, which is the patient classification system used for documenting staffing requirements, is used by both WRAMC and NHBETH. The data on table 22 reveals that NHBETH had patients somewhat more acutely ill than WRAMC during the observation period. The nursing hours required by NHBETH's patients totaled 292, for a staffing requirement of 5 RNs and 8 non-RNs according to tables in the Workload Management System. The nursing hours required by WRAMC's patients totaled 171, for a staffing requirement of 3 RNs and 5 non-RNs. The number of personnel scheduled at each facility in patient care were approximately these numbers (patient classifications actually varied each day as did the staffing mix). Although this variation could definitely impact upon nursing activities, the correlation is not within the scope

TABLE 22

WORKLOAD MANAGEMENT SYSTEM FOR NURSING  
 PATIENT CLASSIFICATION/NURSING HOURS/STAFFING  
 DURING THE OBSERVATION WEEK AT WRAMC & NHBETH

## WRAMC

Patient Classification	Day 1	Day 2	Day 3	Day 4	Day 5
I	10/16	4/6	10/16	2/3	5/8
II	16/78	30/47	24/118	30/147	23/113
III	2/21	2/21	3/32	6/64	6/64
IV	0/0	0/0	0/0	0/0	0/0
V	0/0	0/0	0/0	0/0	0/0
VI	0/0	0/0	0/0	0/0	0/0
Total Nsg Hrs.	115	174	166	214	185

## NHBETH

I	5/8	5/8	9/14	6/10	4/6
II	16/78	19/93	12/59	11/54	16/78
III	7/75	5/54	10/107	14/150	9/96
IV	6/107	6/107	3/53	3/53	5/89
V	1/27	1/27	2/54	1/27	1/27
VI	0/0	0/0	0/0	0/0	0/0
Total Nsg Hrs.	295	289	287	294	296

WRAMC AVERAGE FOR THE WEEK: 170.8 hrs = personnel requirement  
 3 RNs, 5 non-RNs

NHBETH AVERAGE FOR THE WEEK: 292.2 hrs = personnel requirement  
 5 RNs, 8 non-RNs

of this investigation. For the purposes of this study, the charge nurses did note adequate staffing for the wards on each day of observation.

The selected medical wards have many similarities as described below. Already mentioned is the fact that nurses had the support of ward clerks during the weekdays, and that both models used team nursing and the same Patient Classification system. In addition, both models had the support of dietician aides, who report to Food Management Departments, to serve and pick up food trays that they prepare; neither model had the dietician aides passing ice to patients. Both models had unit dose medication systems that were distributed by satellite pharmacies in both facilities. Both wards had medical teams that made teaching rounds, with house staff physicians usually on the ward during the entire day shift. The participant-RNs summarized their backgrounds, and revealed that the majority were prepared at the baccalaureate level for their basic nursing education. The average age for the RN staff on both wards was 27 years. The patients on the wards were typically dependent or retired patients, with chronic disease conditions or cancer. Both wards had patients who had undergone major procedures, such as biopsies, intravenous hyperalimentation catheter insertions, and radiologic procedures.

The study revealed that the RN's in both models were occupied in similar kinds of activities. Recognizing the documented differences in the two patients' nursing requirements in the two models, it is interesting that the direct care activities in both models were 3-4% for Charge Nurses and 19-21% for staff nurses. Combining both charge and staff nurses' activities, RNs in both models spent 16% of their time in direct care categories. NHBETH nursing staff was greater in number, as stated above, but this was balanced out by the greater patient care

requirements documented by the Patient Classification System. Because the amount of personal time taken by nurses in both models was within an expected range compared with other studies, the amount of time spent in patient care was expected to be the amount nurses judged appropriate.

Although direct care categories are the same for nurses in both models, indirect care categories reveal significant differences, with the NHBETH Charge Nurse spending 54%, and the WRAMC Charge Nurse 45% in indirect care categories. NHBETH staff nurses spent 59% and WRAMC staff nurses 51% in indirect care categories. Combining both charge and staff nurses' activities, 75% of the NHBETH nurses' activities and 66% of WRAMC nurses' activities were spent in direct and indirect care activities. These were significantly different in the hypothesis testing at a 5% alpha level. Because indirect care includes the information exchange about patients, and the preparing for care or charting about care given, it is reasonable that NHBETH was greater in percentages of indirect care because of the greater number of people involved in taking care of patients with greater levels of nursing care requirements. This result disproved the null hypothesis that there is no difference in the percentages of direct and indirect patient care activities of RNs in the selected wards. The findings showed that RNs in the nurse-managed ward spent a significantly different amount of time in patient care activities, than RNs in the ward with the unit manager support. The RNs in the nurse-managed model spent 8-9% more time than RNs in the unit-manager model of ward administration.

A prior Navy study by Rieder (1985) noted nurses spent 55% of their time in direct and indirect patient care, and an 1983 Army study by Prelin, Misener, and Twist noted nurses spent 85% of their time in

direct and indirect care. The VA study by Kuhn (1983) noted nurses spent 85% of their time in direct and indirect care. The civilian community hospital study by Lake (1982) noted nurses spent 78% of their time in direct and indirect care. These percentages are for all hospital wards, and all nursing personnel, rather than the RNs on medical-type wards. The range of direct and indirect nursing activities is 55% to 85% in these studies, and the present investigation found 66% and 75% as the comparable percentages. Noting the findings are within the ranges discussed in the literature help to validate the observations. Whether differences in patient care percentages are of practical significance or whether they can be ascribed to the unit management model of administration is the issue. The next step is to analyze the percentages of the other activities nurses are involved in, and determine if differences can be ascribed to unit management support.

The largest percentage of time spent by the WRAMC Charge Nurse was in unit administration, which is interesting since the unit administration system is supposed to relieve nursing of these type of activities. This percentage, 33%, was significantly different than the amount of time compared to the 9% of the NHBETH Charge Nurse. Even the staff nurses at WRAMC, at 3%, devoted more time during the observation period to unit administration than NHBETH staff nurses at less than 1%. The observer noted most of the WRAMC charge nurse unit administrative activities were scheduling, which could explain the differences observed between the models. It happened that it was the time to do schedules at WRAMC, and not at NHBETH. Because the charge nurses were responsible for scheduling the nursing personnel in both models, the practical significance of the work sampling may be questionable. In addition, the

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NHBETH charge nurse documented several hours of ward administrative activities done at home during the observation week, which decreased the practical application of the difference in the 2 models. The unit manager did not schedule nursing personnel, but did get involved in the scheduling of ward clerks and log techs. People on rotating shifts are usually happier with schedules in which they have permanent rotation patterns, so given fixed patterns, and necessary input such as leave and staffing requirements, schedules could be made out by the unit manager. There are automated systems available that would eliminate the difficulty and the time spent in scheduling activity other than for adjustments from unplanned absences.

Professional and staff development is the next category with a large difference, this time in the staff nurses' rather than the charge nurse's activities: WRAMC staff nurses spent 10.4% of their time in professional or staff development, compared to 1.2% for NHBETH staff nurses. However, this statistic may lack practical significance when one remembers that NHBETH has a separately assigned Clinical Instructor, who orients and teaches staff personnel. Because this RN was only on the ward part-time, during which she worked one on one with the medication corpsman, there was an inadvertent loss of professional and staff development activities in the work sampling observations at NHBETH. It is the investigator's observation that RNs in both models gave professional and staff development similar levels of priority and attention.

Although statistically significant, the differences in other categories of nursing activities lacked significant practical application due to their small percentages. Both environmental activities and those

involving supplies and equipment were significantly different for charge nurses but were overall less than 2% of the total percentages. Both models have support personnel who attend to these necessary activities, so that RNs do not devote much time to them other than in an information processing manner.

Committee work activities were significantly different, but due to the unpredictable scheduling nature of this activity, the fact that RNs in both models are on hospital committees, and the low percentage of involvement, 1-3% at WRAMC and none observed at NHBETH, the practical application of this difference is not significant.

The remaining activities observed were personal or non-available time. Nurses spent significantly different amounts of time in the two models, with NHBETH nurses spending 2-3% more in non-available time than WRAMC nurses. However, since the literature reveals personal time ranges between 10-18%, the investigator does not feel the differences in the two models is due to any influence of the unit management. Charge and staff nurses at WRAMC were both 9%, and NHBETH charge nurse was 11%, and staff nurses were 12%. It is interesting how similar the percentages are for charge and staff nurses within their models. The larger number of supportive staff at NHBETH could have allowed the extra 2-3% of personal time. Another explanation could be that nurses would be off the ward and forget to explain to the investigator exactly what kind of activity they were involved in, which could result in a loss of data in the work sampling observations.

Although service unit management is specifically designed to enable ward nursing personnel to increase their time available for patient care (direct and indirect care), this investigation did not

document a significant difference between the models that could be ascribed to the unit management support system. However, many times the activities of nurses are made relatively easier or more difficult due to systems that are in place in the facility. The next section will analyze the actual activities of service unit management, and discuss the impact of unit management upon nursing services in general.

#### Impact of SUM on Nursing Services

Although the WRAMC nurses were not observed in significantly greater percentages of patient care, there could have been differences in the two models that were not within the scope of this investigation. A common purpose of service unit management is to help nurses by decreasing the time they spend in trying to solve interdepartmental problems. Although such problems did not surface in the investigation, the unit manager was occupied with the opening the other medical ward that had closed over the holidays. The fact that this opening was preceded by housekeepers stripping and waxing the floors, was attributed to the unit manager liaison with housekeeping. The attention to unit management activities is a priority with the unit manager, whereas the RN would have had to take time away from nursing care priorities to organize what was needed, inform appropriate personnel, and check on the progress of the required activities. This sometimes requires more planning and coordination than actual time, but any manager, including the RN, has the capacity for only a limited number of priorities before some will not receive the appropriate amount of attention.



Another administrative activity noted to be different in the two models was the management of equipment. The WRAMC unit manager had responsibility for the equipment on his wards and knew the amount of equipment, its cost, and timing of its replacement. The Naval Hospital centralizes major ward equipment ordering and utilizes the nurses and Corpspersonnel for special orders. Physicians in special departments who require certain equipment items order these through their departments. The control over what is ordered in a department is not standardized or centralized through administration other than to verify the forms are filled in correctly and standard stock is ordered if possible before Open Purchase is requested. Service unit management at WRAMC provided managers to not only budget, but be responsible for their equipment (hand receipt holders). Although the effectiveness of the Army system is not within the scope of this study, the acquisition of equipment by the person who manages the budget is a controlled and proactive system that is supportive for nursing personnel.

Unit managers take responsibility for inspecting wards for cleanliness, safety, and supply problems. The charge nurses would rather not devote time to resolving problems with housekeeping or monitoring equipment repair turnaround time, which can be handled by a non-nursing manager in an effective manner. This kind of administrative support would be a retention factor for RNs in NHBETH's Labor and Delivery Room. The amount of time spent on cleaning, or arranging cleaning support, and checking on monitoring equipment at biomedical repair would save not only time, but also relieve frustration of RNs, and assist in quality assurance and safety programs. NHBETH has the Leading Petty Officers, E-4's, following up on administrative details, with the charge nurses

involved at the problem solving level. If hospital support systems have major problems, then the Corps personnel cannot effectively handle the unit management activities on their own. If the Charge Nurse has a shortage of nursing personnel, then the patient care is the priority activity. It is in these situations, that the unit manager would be more attentive to unit management than the Charge Nurse. A manager with experience and maturity can deal with interdepartmental problems and usually identify the necessary process of resolving these problems. A unit manager can deal with such problems with authority, and in fact, would be responsible for the problem resolution and monitoring.

Although WRAMC and NHBETH both have effective systems of dietary management, logistical support, and housekeeping, the unit manager can be of assistance to nursing service in monitoring these activities. Another area of assistance would be in the management of medical records. The accountability for outpatient and inpatient records has increased in today's preparations for inspections by military audit teams and civilian accrediting agencies such as the Joint Commission for Accreditation of Hospitals (JCAH). Although major problems such as the turnaround time for tissue and other laboratory reports, lengthy transcription times, and incomplete narrative summary dictations transcend the ward level, there are medical record problems that a unit manager could monitor and relieve from nursing responsibility. Ensuring laboratory and radiographic reports are in the charts in a timely manner requires liaison with the Lab, Radiology, messenger services, and ward personnel. Automation and manual systems to ensure physicians' orders get to the pharmacy and medications are received, could be monitored. Budgeting for equipment to receive laboratory data would be the ward manager's realm. Ensuring

maintenance and repair of information systems and other equipment used in the patient care environment could be the ward manager's responsibility.

Accomplishing preventive maintenance for equipment, and ordering replacement equipment at appropriate times can give nurses the resources to give quality nursing care. Nursing personnel and patients could benefit from this administrative support, ensuring ward and patient requirements are addressed in a timely and efficient manner.

Another helpful area of unit administration is the orientation of staff and patients to personnel, fire, safety and environmental regulations. The unit manager can be helpful in the processing of information about the environment, so that the high turnover experienced in the military treatment facility does not cause a loss of progress or productivity of employees. The issue of knowledge of hospital systems and how to accomplish work (such as equipment repair or replacement) is the value of unit management. If the manager is knowledgeable, and aware of the ward environment, then problems can be avoided or resolved early. If the Charge Nurse and the Unit Manager can work together, then the system will expedite patient care. Nursing services in many large teaching hospitals have looked to unit management as a problem-solving department. Since many problems have to do with obtaining resources, managers can offer expertise to clinical professionals in planning for needs, using resources, and prevention of loss of these resources (supplies, equipment, manpower and time). A large hospital frequently must plan to solve the problems involved in personnel turnover. Although a well-organized and efficient organization is more likely to enhance the retention of its employees, the unit manager could assist in monitoring retention and turnover, staff satisfaction and morale issues,

and make recommendations for employment policies that would enhance retention.

One of the major concerns of health care professionals is the ability to deliver quality patient care with a maximum level of both staff and patient satisfaction. The military patient and family members have many expectations of the health care system, and can feel especially vulnerable during periods of hospitalization, especially if located geographically in places far from family or extended family support. Although all staff may want to give good care, their behavior may not communicate this goal due to the workload of other patients and the necessary prioritization of their requirements. In cases of patient contact problems, the ward manager is able to listen to people, without the problem of causing other patients' more immediate needs to have to wait. This will help all participants involved. The unit manager can be the patient advocate and mediator, plus give feedback to staff or design communication seminars that would promote a positive self-image for people, which would enhance morale and the reputation of the hospital.

Although unit managers are capable of managing many ward activities, most clinical personnel would prefer a clinical professional as the supervisor of their clinical type activities. The RN in the military health care facility fulfills an important role in supervising and training paraprofessional Corpspersonnel, so that positions in the field and fleet medical units have qualified personnel. Because of the large number of Corpspersonnel and the smaller number of RNs, RNs are called upon to fulfill this supervisory role, rather than a direct patient care role as a military nurse. Having the Head Nurse responsible for the ward personnel can also eliminate the problem of conflicting

management of employees. Having "one boss", rather than a unit manager plus a Head Nurse, prevents personnel management conflicts. Having the Head Nurse as the supervisor recognizes the daily interaction of the nursing personnel with non-nursing personnel is so close that any problems that may occur should be addressed within the work group, as that is where the information about the problem is generated. The Head Nurse is capable of analyzing and resolving work group problems. In fact, since the Head Nurse must resolve work group problems of patient care personnel anyway, it is more economical to include other personnel in the group also, rather than separating these personnel out simply because they do not give hands-on patient care. The advantage of a centralized SUM system, being able to cover employee absences easier, can be accommodated in a ward management by nurses also. Transferring personnel such as ward clerks or log techs to cover absences on other wards can be economically handled by the Nursing Coordinators, who cover more than one ward. An interesting idea at Johns Hopkins University Hospital was the ward clerk committee, which was a meeting of ward clerks to address problems, provide support, and help update training. With such a group, ward clerks would be less against moving to another ward to help cover absences. Whether a unit manager or a Head Nurse, recognition can be given personnel for their contributions to the mission, for increasing job satisfaction and promoting career progression.

Nurses do function in expanded clinical roles in the ambulatory care settings. Presently nurses in the military do not admit, treat and discharge patients in the inpatient setting, but presently these units exist in the federal sector, such as the one at the Veterans Hospital in

San Antonio, Texas. The interaction of these nurse practitioners with the nursing personnel that practice nursing in the military wards would require further study.

In visits to large hospitals with SUM systems, the investigator found nurses willing to empower and support the managers with the knowledge of what their ward requirements were. Nurses not only had plenty of administrative problems to share, but it was apparent that these problems transcended the wards. Because of this finding, it is logical that ward managers can be helpful not only to ward, but also to out-patient clinics, operating rooms, central sterile processing and medical and surgical departments. If the SUM system does not succeed, then it may not be the system that is the problem, but the skill level of the manager and the willingness of the professionals to teach the manager and give the manager the authority to do the job. Often overlooked in implementing SUM systems are considerations of the impact on other staff employees. Other considerations include giving unit managers time to learn their roles and giving other staff time to adjust to having a unit manager. Essential steps include positive leadership, making an implementation plans and, allocating the proper resources.

The last section to be discussed is the impact of a service unit management system in the Naval Hospital, and the problems that military staff may encounter. To understand the impact of SUM, the discussion will focus on the structure and purpose of SUM, and the feasibility of having increased numbers of professional administrators in the Naval Hospital.

### The Impact of SUM on the Naval Hospital

An important factor in the military treatment facility is the structure of the unit management system. If the structure of the management system is not appropriate, the system may never achieve its potential in supporting patient care professionals. The structure of the unit management system is important for three reasons. First, organizational structure is the vehicle through which work is accomplished in an effective manner with a minimum of conflict. Second, structure affects employees' perceptions of their jobs, their job satisfaction, and their progression up a career ladder. Third, structure affects the distribution of resources in the organization.

The most effective accomplishment of work with the least amount of conflict is the first criteria of an successful unit management system. If unit managers were responsible for supervising RNs, and these managers worked at the same grade level as the RNs, the manager would lack the necessary authority and clinical knowledge to carry out the job. The RN would have to teach the manager about administrative requirements of the ward, and the two professionally trained personnel would experience competition for the leadership role, reinforcing confusion in staff personnel about who is in charge. If the Head Nurse supervised the ward manager, then the managerial positions would lack the authority and salary levels commensurate with the education and skill necessary to proactively manage budget and personnel, and resolve interdepartmental problems. When unit managers are equal with nurse managers, such as the Nursing Coordinator of several wards, then the SUM system will have the positions with enough responsibility and authority to carry out the

administrative tasks, and the salary level to attract and retain competent people. If the scope of the unit manager is a single ward, then the amount of work and the appropriateness of its scope is not enough to keep a professional manager busy. If the scope of the managerial responsibility is several wards or on the department level, then the unit manager will not function at an inappropriate level. The unit manager must be available for administrative tasks, and analysis of problems, but not for everyday clerical or messenger duties. The manager must be available for intra- and inter-departmental meetings to process the information required to resolve and reach departmental objectives. If the manager is responsible for too large a span of control, then the departments will not have sufficient administrative support to be of any help. Therefore, the manager's position within one department, large divisions, or several patient care units with some commonalities, will help in establishing an effective unit management system. Establishing unit managers in the Naval Hospital's departments, would not be the same as establishing unit managers on the ward level, because nursing personnel with professional training are available for a management role on the wards, which unit managers cannot fulfill in all aspects. Nurses that function in expanded clinical roles do exist in ambulatory settings, and unit managers could work with these clinic and department personnel and fulfill a real need for management expertise.

At present, administrative support may not exist in departments, or may be assigned to a Chief Petty Officer who covers several large areas. The professional administrator can be of help to the clinical professionals who are organized under departments, yet work both outpatient and inpatient care areas. This administrator could be a



pivotal role to integrate the two areas in regards to equipment needs, medical records controls, and policy coordination.

The second consideration is the job satisfaction and career progression of the professional administrators. If managers report through the nursing chain of command versus the hospital administration chain of command, the managers lose visibility and support of the professionally trained administrative staff in the hospital. The career progression of the unit manager is a problem because managerial positions of greater responsibility are occupied by the military. Although managers that stay in their jobs increase organizational stability, the younger, well-educated managers will naturally desire to be promoted after a few years. Placing unit management in the nursing chain of command may be one way to establish the unit management system so that managers can be nurtured by nursing personnel willing to teach managers how to manage the wards, but it is not the best way to attract professional managers. In addition, in the Navy hospital, the unit manager role overlaps with that of several military personnel, including nurses, Corps personnel, and health care administrators in centralized administrative departments. Adding another managerial layer will require resources that may be difficult to justify. However, as a departmental administrative assistant, the manager can be fully utilized in an area in which no other professionally trained person is available. If the unit manager is a cooperative, skilled manager, then personnel will accommodate and value the manager as a member of the professional team, which will reinforce the manager's job satisfaction. To attract competent personnel, the salaries and benefits are a key issue. Another key issue is having an effective orientation and training program so that managers have the

requisite organizational knowledge. Programmed learning modules and short rotations in the hospital departments and divisions can assist these managers.

The third consideration of the structure of SUM systems is the ability to gain resources within the organization. If unit managers work on wards, then they manage only a fraction of the departments budget. If at a department or large division level, then the total budget of that area is theirs to manage. Whether reporting to nursing administration, hospital administration, medical or surgical departments, the manager must have the ability to manage resources and justify purchase and new personnel requests. In the military system, all areas compete for dollars and authorizations, so that the structure of unit management is not favored with advantages in one directorate or department over another. The issue of decentralizing authority and responsibility in the modern organization make it logical to give administrative responsibility to the accountable unit of the organization, such as the departments. The point at which the position of a professional administrator becomes economically feasible, is the level at which the budget, supplies and equipment, and personnel management responsibilities require professional business expertise as opposed to assigning these responsibilities as collateral duties to clinical professionals.

One could assume that nurses would decrease their patient care activities as the unit administration activities increase. However, in the inpatient setting studied, RNs gave the direct and indirect care required by patients, and unit administration work was sometimes taken home if not accomplished during duty hours. The amount of administrative

work would be the factor in determining whether a unit manager is necessary at the ward level.

The organization as a whole would benefit by professional management due to the technology, high-dollar budgets, complex interactions of other hospital departments, and the large number of patients and personnel. However, the feasibility of creating positions at a professional salary level, usually at least the GS-11 range of \$26,000 to \$34,000 , is questionable, unless the departments are willing to give up a professional clinical billet. What rationale would the nursing department have to establish unit managers, if their administrative support system using Corpspersonnel and Registered Nurses is working, and the RNs are giving as much, if not more patient care than RNs in a model with unit management support. In addition, taking on managerial functions such as staffing, scheduling, and personnel management, creates the opportunity for the Charge Nurse to build an effective nursing team. However, this role exemplifies the need to minimize the time involved in ward administrative tasks in order to concentrate necessary energies on patient care responsibilities. This can be achieved with automated information systems, specialized scheduling programs, time management techniques, and programs to decrease personnel turnover and increase job skills.

The common sense principle is to utilize the expertise appropriately, and allocate personnel within the constraints of the budget and the availability of personnel. If a leader in a ward work group can manage its own personnel, whether the senior enlisted or the senior nurse, then it is more efficient to allow them to manage rather than bring in a unit manager who does not have the specialty knowledge of

the unit. The number of contracted services and centralized operations in the Naval Hospital decreases the need for unit management at the ward level. This trained administrator is more effective in areas where the administrative workload is heavy, such as where the budget is large, or the coordination complex.

The placement of trained administrators at the Naval Hospital would be more useful along the department/large division lines since administrators are already working in the directorate level and major centralized support services. The advantages to having centralized administrative support, as opposed decentralized, departmental control and accountability, would be the increased flexibility of covering employee absences, the increased productivity of employees who have greater work funneled into their section, the decrease in time spent by clinical professionals in departments in personnel management, and the increase in quality of work usually associated with larger scope production groups. However, because the departments are held accountable for administrative functions, and could utilize the expertise of a professional administrator, these positions would be helpful at the department level. If the departments have an unfilled authorization or billet, then the establishment of a unit manager position is feasible.

Prior to implementation of this position, it is important to educate the professionals what roles these managers can play in the department, and what impact they will have on other personnel. If the commitment to establish these positions is there, then the next step would be to formulate the position description, and a training program that orients the manager to the Naval Hospital as a whole. The study of the SUM system at WRAMC revealed an intra-organizational study of their

SUM system which was to recommend changes as needed. After eight years in SUM, the organization had discovered personnel were unhappy with unit managers supervising ward clerks, and recommended this role be transferred to the Wardmaster and Head Nurse. Unit managers were requested in the medical and surgical departments, rather than just in support of the inpatient wards, outpatient clinics and the operating room. The administrative support system was not as popular in an overall evaluation, because the hospital had many problems which the SUM system failed to solve. Some wards were covered by inexperienced Medical Service Corps Officers, who had difficulty carrying out the responsibilities of the unit administrative role. The Wardmasters felt they were not utilized to their fullest capability due to the overlapping functions with the unit managers. WRAMC had instituted a primary nursing-team nursing practice model to increase RN patient care activities, but due to the shortage of RNs, and perhaps due to the military setting, this adaptation was discontinued, and team nursing was instituted. The SUM system did not have a positive documented impact on nurses' job satisfaction in this formal evaluation. Although the WRAMC formal study is completed, no changes have been instituted as of the writing of this report. The next section summarizes the conclusions of the investigation and gives the final recommendations.

### CHAPTER III

#### CONCLUSIONS AND RECOMMENDATIONS

The purpose of the service unit management model is to relieve nursing personnel of unit administration tasks, and increase the time devoted to patient care. The means to accomplish this increase in patient care productivity is by creating professional managerial positions to cover a specific number of wards, and transfer the logistical, medical record administration, environmental safety, and personnel management of non-nursing personnel to these managers. This study investigated nurses' activities in a selected medical ward in a hospital utilizing management, and compared these to nurses' activities in a selected medical ward of comparable staffing and patient census without unit management support. The comparison of the selected wards revealed:

1. Charge nurses in each model spent the same percentage of time in direct care activities, 3-4%.
2. Staff nurses in each model spent the same percentage of time in direct care activities, 19-21%.
3. The total percentages of charge and staff nurses' activities combined in each model were the same, 16%.
4. The charge nurses spent significantly different amounts of time in indirect care activities: 54% in the nurse-managed model, and 45% in the unit-management model.

5. Staff nurses spent significantly different amounts of time in indirect care activities: 60% in the nurse-managed model, and 51% in the unit-management model.
6. The total percentages of charge and staff nurses' activities combined in each model were significantly different in indirect care activities: 59% in the nurse-managed model, and 50% in the unit-management model.
7. The charge nurses spent significantly different amounts of time in combined categories of direct and indirect care activities: 58% in the nurse-managed model, and 48% in the unit-management model.
8. Staff nurses spent significantly different amounts of time in combined categories of direct and indirect care activities: 79% in the nurse-managed model, and 72% in the unit-management model.
9. Charge nurses in the two models were the same in direct care and travel categories of activities, but were significantly different at a 5% level of significance in the rest of the categories.
10. Staff nurses in the two models were the same in other direct care categories, and other indirect care categories, but were significantly different in the rest of the categories.

The conclusion of the investigation is that RNs in the ward with unit management support still did not spend more time in patient care activities than RNs in the ward without unit management support. In fact, the investigation revealed that RNs in the nurse-managed model spent a greater percentage of time in patient care activities than the RNs in the unit management model.

Possible explanations for the greater patient care activities in the nurse-managed model include: (1) nurses in the unit management model continue to function in the same roles, that is, teachers, and

supervisors of paraprofessionals, therefore the patient care percentages did not document the influence of unit management; (2) the patient care requirements and number of RNs available influence the percentage of patient care activities more than the administrative support model; (3) the nurse-managed model has an adequate administrative support system carried out by Corps personnel and centralized hospital administration departments, so that RNs were allowed to develop their nursing practice roles and become similar to those of RNs in models with professional unit management support systems.

The limitations of this investigation must be remembered before making conclusions about service unit management support for other types of wards, or for ambulatory and operating room settings. This study focused on RNs in a medical inpatient environment on the day shift. Patient care requirements were typically non-elective, with RNs frequently taking unit administrative work home, rather than allocating time during duty hours away from patient care management. Service unit management may not have reached its potential in the model studied, because nurses did not seek increased administrative support or because nursing shortages prevented the increase in direct patient care activities. SUM models may prove of more value to RNs in other patient care environments, where management of the paraprofessional staff is not an expected role and the RN is able to develop more clinically oriented patient care roles. The future role of military nurses may change and requirements of unit management support at the ward level may increase. The development of unit manager positions in the ambulatory care setting could help in the event of increased operational support and contingency requirements in which the Chief Petty Officers, who normally are assigned to



to administrative assistant roles in departments, no longer are available in sufficient numbers to provide support.

Further study of the unit administrative support concept is recommended in the ambulatory setting, focusing on the cost-efficiency aspects of the model. Criteria for other studies could be patient or staff satisfaction, or attention to the monitoring of administrative problems with improvement and resolution.

Recommendations as a result of the study of the two models of ward administration, include the following:

1. The establishment of the position of a professional manager should be considered in departments or large divisions with high dollar budgets, complex clinical environments, and important liaison and coordination activities. Personnel in these departments should consider the impact of this manager on the personnel presently doing the administrative work, such as the Chief Petty Officer. People should be informed of the purpose of the professional manager, and the duties and responsibilities, so that the job tension can be minimized. The manager should be included in formal and informal information-passing and decision-making of clinical professionals that impacts on budget, policy, or personnel management. The manager should be a structural part of the staff, and have a formal orientation and training period. Continuing education should be provided by attendance at professional meetings or organizations, and by being included at in-house seminars on administrative topics. Salaries should be commensurate with the managerial responsibility, and the position should have both line and staff functions. Personnel hired for departmental positions should be experienced in fiscal management and health care administration.

2. Nurses in leadership positions should be aware of the availability of professional administrative support positions in the event that their unit administrative responsibilities take so much time that their nursing practice is constrained. Non-professional administrative support functions need to be standardized and presented in iterative programs so that information is disseminated to new personnel with a minimum of time taken away from patient care activities. Nurse managers need to investigate the acquisition of information systems that automate scheduling activities.

## APPENDIX A

## DEFINITIONS

1. The categories of nursing activities are described in the following examples:
  - a. Direct Patient Care includes procedures such as
 

catheterization	baths
mouth care	skin care
dressings	tidal drainage
irrigations	packs
ostomy care	postural drainage
suction	trach care
traction	elimination, enemas
drawing blood	starting IVs
vital signs	weighing patient
assisting Dr. (procedures)	checking IVs
backrub	decubitus care
turn, position, dangle pt.	inhalation therapy
administer medications	peritoneal dialysis
skin preparation	range of motion
application of bandage/hose	perform treatments
personal hygiene	post-mortem care
hanging IVs, adding meds.	making occupied bed
cough & deep breathe	obtaining specimens
  - b. Other Direct Care includes procedures such as
 

patient history	assessment
comfort/room environment	observation of patient
talking or listening to pt/family member	
teaching, supervising, helping pt ambulate	
feeding/nutrition	answering call light
making unoccupied bed	helping pt in/out of bed
labeling specimens	
  - c. Indirect Care, information exchange is the verbal exchange of information about the patient during the course of care, or
 

Formal team conference	Formal shift reports
Referrals to other agencies	Discussing pt condition with Dr.
Making rounds with Dr.	Calling lab, x-ray, pharmacy about pt.
  - d. Other Indirect Care includes
 

Preparing meds, treatments, careplans	
Reviewing chart for patient information	
Taking Dr. phone orders	Check, record, execute Dr.orders
Use of kardex	Safety checks
Accident & incident reports I & O	
Charting care, V.S.	Ordering drugs for pt
Washing hands prior to pt care	Preparing isolation room for pt.

1.
  - e. Professional and Staff Development includes
 

Orientation of staff	Informal staff education
Formal staff education	Formal guidance and evaluation
Nursing rounds for staff ed.	
  - f. Personnel, Other includes
 

Staff meetings	Work planning for personnel
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  - g. Environment includes
 

Cleaning patient or ward unit or kitchen
Emptying linen or trash container
Report needed repairs
  - h. Supplies & Equipment includes
 

Inventory drugs, linen, supplies
Replenish or restock supplies
Deliver or remove food tray
Check emergency cart
Count narcotics
  - i. Other Unit Activities includes
 

Attendance reports	Time Schedules
Patient census or classification	
Using computer terminal	Patient condition reports
Receptionist duties, paper work for admissions/discharges	
Deliver/upkeep flowers, deliver mail.	
  - j. Personal includes
 

Chatting	Lunch breaks
Walking without purpose	Idle, off-unit time
  - k. Military functions includes
 

Inspections of personnel	Special functions required to attend
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  - l. Travel includes
 

Transporting people and objects (supplies, equipment, specimens)
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2. The Charge or Head Nurse is the individual responsible for the organized hospital unit within which nursing care is provided; the title is synonymous with unit coordinator at WRAMC.
3. RN, registered nurse is a graduate nurse that has completed training and passed a State licensing exam; entry level can be 2 years (Associate Degree), 3 years (Diploma), or 4-5 years (Baccalaureate).
4. Team Leader is the RN in charge of a group of patients' total nursing care, and often supervises paraprofessionals giving the patient care.
5. Clinical Instructor is a nurse assigned to orientation and training of staff personnel; many times this person works one on one with the orientee on medication administration.

6. Service unit management (SUM) or unit management is an administrative concept which provides skilled managers to give administrative, logistical, and personnel management support to patient care units, either inpatient or outpatient or to specialized areas such as Central Supply, Operating Room, or other departments in the hospital where nurses historically have been in charge. The model is designed to improve patient care by allowing nurses and physicians more time to conduct clinical patient care activities rather than administrative functions that many are not professionally trained in, and find time-consuming and interfering with their patient care concerns.
7. Workload Management System for Nursing is a process used by the Army and Navy Nurse Corps to determine nursing personnel staffing of patient care areas according to identified patient care needs or problems. The automated system has programs for medical-surgical, obstetric-gynecological, intensive care, newborn nursery, pediatrics, and psychiatric (which is still in the pilot stage); programs for ambulatory care(OPD), Emergency Room, Labor & Delivery, Operating Room, Nursing Administration, and Recovery Room are not in the system yet. Six categories of patient acuity are figured on the day shift to predict the patients' nursing hours prospectively. Staffing adjustments can be allocated on the hospital's overall requirements. The nursing care hours are extrapolated from tables that give nursing hours needed for a summary list of the patient number and classes. The table data is a result of research studies in civilian, VA, Army and Navy hospitals on direct and indirect patient care given by nursing personnel.
8. Paraprofessionals refer to any health care workers who have technical training, but who have not graduated from a collegiate professional level of education. These personnel may include but are not limited to licensed practical nurses or vocational nurses, Hospital Corpspersonnel, medically trained Army enlisted personnel, and nursing aides.

## APPENDIX B

## GUIDELINES FOR COMPUTING STAFFING REQUIREMENTS

The Workload Management System for Nursing is incomplete in predicting requirements for Operating Room, Recovery Room, Out-Patient Department, Emergency Room, Nursing Administration, and Psychiatry (still in pilot stage). Staffing requirements for these areas can be figured by a simple formula to account for lost time due to annual leave, holidays, average sick leave. Patient acuity or classification is not a variable in the formula, but historical staffing needs based on the judgment of the charge nurse is the baseline.

1. One formula totals the lost time and subtracts it from the available time. For example:

30 days annual leave (or can be TAD)	52 week per year
9 authorized holidays	<u>x5</u> (8 hr wkdays/wk)
4 days average sick leave per staff	260 wkdays/yr
43 days average time lost	<u>-43</u> lost time
	217 wkdays/yr available

$$\frac{217}{52} = 4.17 \text{ wkdays/wk available}$$

Staffing Requirements based on Historical Ward Requirements:

	(M-F)	(S/S)	(T-M)	(F-Th)	
	A	A	P	N	Tot
Staff Required	4	3	1	1	9
Days/Wk Period	5	2	7	7	-
Total Shifts	20	6	7	7	40

Staffing for a 40 hr week without leave or TAD is total required shifts divided by 5 (days worked/wk); in the above example, 40 shifts divided by 5 equal 8 people.

Staffing for a 40 hour week with lost time allowance is total required shifts divided by 4.17 (available workdays/wk) which is 9.59, or 10 people.

2. Another formula summarizes lost time in a percentage, 15% for registered nurses, and 10% for paraprofessionals:

$$\frac{\text{required number of RN(or non-RNs)} \times 7 \text{ days} + 15\%(\text{or } 10\%) \text{ of Req \#}}{5 \text{ days/wk}}$$

$$\text{eg. } \frac{8 \times 7 + 15\% \text{ (of 9 required RNs)}}{5} = 12$$

Usually the charge nurse (on the Mon-Fri AM shift) is left out of the Staff Required as the Charge Ns does not rotate or take a direct care assignment.

## APPENDIX C

## WORKLOAD MANAGEMENT SYSTEM FOR NURSING

The Workload Management System encompasses three processes:

1. Assessment of the patients nursing needs and problems and classification by the registered nurse responsible for the patient's care.
2. Summarization of the points assigned according to the patient's classification according to the following:
  - a. Class I- self-care (minimal care)
  - b. Class II- moderate care
  - c. Class III- acute care (1 staff to 3 patients)
  - d. Class IV- intensive care (1 staff to 2 patients)
  - e. Class V- continuous care (1 staff to 1 patient)
  - f. Class VI- critical care (1 staff to 1 patient)

The number of patients in each category is given a total number of nursing hours, according to a table, and the total number of nursing hours for all patients is also figured into another table, that gives a staffing allocation according to shift time, shift length, and staff mix. Tables are the result of research studies in the civilian community hospital, the VA Hospitals, and both Army and Navy hospitals. The resulting number of nursing personnel may be compared with the assigned number for documenting excesses, shortages, and balanced requirements. The allocations are used not only at the hospital level for meeting staffing needs, but also at the Manpower Authorization planning level, to determine future requirements.
3. Evaluation of the care given can be measured by auditing the Patient Classification Instrument with the documented care given. The quality of care can be improved by using an objective instrument to assign nursing personnel to patients in appropriate ratios and skill mixes.

Reference: Karen Rieder, James Vail, Dena Norton, and Susan Jackson, "Workload Management System for Nursing," 3rd ed., May 1985.

# APPENDIX D

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TABLE 1. PANEL OF EXPERT CONSULTANTS CRITERIA FOR NURSE STAFFING AND RN EDUCATIONAL PREPARATION

Type of Employment	Criteria for Staffing						Criteria for RN Educational Preparation			
	Lower Bound Per 100 Patients			Upper Bound Per 100 Patients			Doct.	Master's	Bacc.	AD/Dip.
	RNs	LPNs	Aides	RNs	LPNs	Aides				
<b>INPATIENT SERVICES</b>										
General Units*	40.0	12.0	12.0	56.5	12.0	12.0			50%	50%
Rehabilitation Units	40.0	12.0	12.0	56.5	12.0	12.0			50%	50%
Newborn Units	40.0	12.0	12.0	56.5	12.0	12.0			20%	50%
Critical Care Units	200.0	6.0	0.0	250.0	0.0	0.0			50%	50%
Extended Care Units	20.0	20.0	20.0	30.0	20.0	20.0			50%	50%
Acute Units in Hospitals										
under 100 Beds	40.0	12.0	12.0	56.5	12.0	12.0			50%	50%
Long-Term Hospitals										
(Psychiatric)	13.0	10.0	30.0	22.0	10.0	30.0			50%	50%
Psychiatric Units in All										
Short-Term Hospitals	40.0	0.0	24.0	56.5	0.0	24.0			50%	50%
<b>OTHER HOSPITAL SERVICES</b>										
Operating Room	1.5 RNs per 1000 operations (10 RNs/0 LPNs/3 Aides)			1.8 RNs per 1000 operations (10 RNs/0 LPNs/2 Aides)						100%
Emergency Room	.22 RNs per 1000 visits (10 RNs/10 LPNs/10 Aides)			.44 RNs per 1000 visits (10 RNs/10 LPNs/5 Aides)					50%	50%
Outpatient Clinics	.11 RNs per 1000 visits (10 RNs/10 LPNs/10 Aides)			.23 RNs per 1000 visits (10 RNs/10 LPNs/5 Aides)				10%	80%	10%
	Per 100 Patients			Per 100 Patients						
	RNs	LPNs	Aides	RNs	LPNs	Aides				
<b>NURSING HOMES</b>										
Nursing Care Homes	9.0	23.0	23.0	20.0	40.0	40.0			50%	50%
Personal Care Homes										
with Nursing	5.0	10.0	20.0	5.0	10.0	20.0			50%	50%
<b>PHYSICIANS' OFFICES</b>										
	2.0 RNs per 10 MDs (10 RNs/3 LPNs/0 Aides)			2.2 RNs per 10 MDs (10 RNs/2 LPNs/0 Aides)				25%	25%	50%
<b>COMMUNITY HEALTH</b>										
Home Health Care	See Appendix C of complete report for detailed criteria							10%*	75%	15%
General Public Health								10%*	90%	
Child								10%*	75%	15%
School Health	1 RN per 1000 students (grades 1-12)			1 RN per 750 students (grades 1-12)				10%*	90%	
Occupational Health	1 RN per 500 employees			1 RN per 500 employees				10%*	90%	
Other									50%	
<b>NURSE PRACTITIONERS</b>										
Hospital Ambulatory Care	10% of hospital ambulatory care RNs			13% of hospital ambulatory care RNs			Currently certificate and/or master's preparation exist.			
Physicians' Offices	15% of RNs in physicians' offices			25% of RNs in physicians' offices			Currently certificate and/or master's preparation exist.			
Community Health	10% of RNs in public health			10% of RNs in public health			Currently certificate and/or master's preparation exist.			
Nursing Homes	40% of the clinical specialists in nursing homes			50% of the clinical specialists in nursing homes†			100%			
<b>CLINICAL SPECIALISTS</b>										
Dieta, Teaching		3.0			5.0		The educational preparation for all clinical specialists is at the graduate level.			
(over 400 beds)										
(under 400 beds), and		2.0			4.0		Projections were made for 100% master's preparation.			
Long-Term Hospitals										
Short-Term Hospitals		2.0			4.0					
Hospitals										
Nursing Clinics		5			10					
Community Health		0.2			0.3					
Nursing Homes										
Long-Term Ambulatory Care	1 per 20 LCC RNs			1 per 20 LCC RNs						
Short-Term Ambulatory Care	1 per 20 LCC RNs			1 per 20 LCC RNs						

Reference: Jean Lum, "WICHE Panel of Expert Consultants Report: Implications for Nursing Leaders," *Journal of Nursing Administration* 9 (July 1979): 14-19.



WORK SAVING DATA SHEET

DATE \_\_\_\_\_

DAY OF WEEK

## FACILITY

**KEY: C = Charge Nurse  
X = Staff Nurse**

[illegible]

PARTICIPANT CONSENT EXPLANATION

TITLE OF PROTOCOL: Comparison of the Work Activities of Professional Nurses Under Two Models of Ward Administration.

INVESTIGATOR: Carolyn S. Warren, LCDR, NC, USN, Administrative Resident in U.S. Army-Baylor University Graduate Program in Health Care Administration (202) 295-2266/2267.

PARTICIPATION INFORMATION: You have been asked to participate in a research study conducted at Walter Reed Army Medical Center. It is very important that you read and understand the following general principles that apply to all participants in our studies, whether normal or patient volunteers:

- a) Your participation is entirely voluntary.
- b) You may withdraw from participation in this study or any part of the study at any time. Refusal to participate will involve no penalty or loss of medical benefits to which you are entitled.
- c) After you read the explanation, please feel free to ask any questions that will allow you to clearly understand the nature of the study.

NATURE OF THE STUDY: The study method will involve the investigator being present on the unit for one week, observing and documenting on an activity check-list the activities of professional nurses. A similar week of observation will take place at Naval Hospital, Bethesda, on a closely match unit of patient care activity. The nurses will be asked whether they think the day's activities were average, or expected. Nurses' background data (such as age, education, and experience) will be documented. The area coordinator, ward manager, and/or charge nurse will be interviewed to determine what personnel/support activities impact on the workload of the professional nurse. The data will be summarized, analyzed and compared to determine the influence of the unit service administration (ward manager system) on professional nurses' activities. The study will be submitted in partial fulfillment of graduation requirements.

BENEFIT: The study of nursing personnel will help the Naval Hospital determine if their nurses would benefit from the unit service management model of hospital administration. The participants will have the opportunity to participate in a research project, and may obtain feedback on their individual work sampling sheet, if desired.

DURATION OF STUDY: The study will be conducted from 0645 to 1530 (day shift) Monday through Friday for one week.

RISK, INCONVENIENCE: The data gathered will be held confidential (an individual may look at her/his own activity sheet). The purpose is not to evaluate the quality of work but to record the type of activities nurses are doing; therefore, there should be little hindrance to the working professional nurses. The time involved in the background questionnaire will be less than 10 minutes. The major time involvement will be in the interview process, an open-question/answer method, which the investigator will schedule at the nurses and/or ward manager's convenience. The efforts and time involved on the part of the participants are greatly appreciated.

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Participant's Initials

1. **AUTHORITY:** 10 USC 3012, 44 USC 3101 and 10 USC 1071-1087. [Volunteer Agreement Affidavit]
2. **PRINCIPAL PURPOSE:** To document voluntary participation in the Clinical Investigation and Research Program. SSN and home address will be used for identification and locating purpose.
3. **ROUTINE USES:** The SSN and home address will be used for identification and locating purposes. Information derived from study will be used to document the study; implementation of medical programs; teaching; adjudication of claims; and for the mandatory reporting of medical condition as required by law. Information may be furnished to Federal, State and local agencies.
4. **MANDATORY OR VOLUNTARY DISCLOSURE:** The furnishing of SSN and home address is mandatory and necessary to provide identification and to contact you if future information indicates that your health may be adversely affected. Failure to provide this information may preclude your voluntary participation in this investigational study.

## PART A - VOLUNTEER AFFIDAVIT

## VOLUNTEER SUBJECTS IN APPROVED DEPARTMENT OF THE ARMY RESEARCH STUDIES

Volunteers under the provisions of AR 70-25 are authorized all necessary medical care for injury or disease which is the proximate result of their participation in such studies.

I, \_\_\_\_\_ SSN \_\_\_\_\_ having  
(last, first, middle)

full capacity to consent and having attained my \_\_\_\_\_ birthday, do hereby volunteer to participate in  
Comparison of the Work Activities of Professional Nurses Under Two Models  
of Ward Administration (research study)

under direction of Carolyn S. Warren conducted at WRAMC, Wash.D.C. 20307-5001  
(name of institution)

The implications of my voluntary participation; the nature, duration and purpose of the research study; the methods and means by which it is to be conducted; and the inconveniences and hazards that may reasonably be expected have been explained to me by Carolyn S. Warren, LCDR, NC, USN, Administrative Resident, Hospital Administration, Naval Hospital, Bethesda, Maryland, (202) 295-2266/2267

I have been given an opportunity to ask questions concerning this investigational study. Any such questions were answered to my full and complete satisfaction. Should any further questions arise concerning my rights on study-related injury I may contact Center Judge Advocate Office

at Walter Reed Army Medical Center, Washington, DC 20307-5001 (202) 576-4096/4097  
(name and address of hospital & phone number (include area code))

I understand that I may at any time during the course of this study revoke my consent and withdraw from the study without further penalty or loss of benefits however, I may be ☐ required (military volunteer) or ☐ requested (civilian volunteer) to undergo certain examination if, in the opinion of the attending physician, such examinations are necessary for my health and well-being. My refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled.

## PART B - TO BE COMPLETED BY INVESTIGATOR

**INSTRUCTIONS FOR ELEMENTS OF INFORMED CONSENT:** (Provide a detailed explanation in accordance with Appendix E, AR 40-38 or AR 70-25.)

**NATURE OF STUDY:** A study of nurses' activities under the unit service management model of ward administration and of nurses' activities under the traditional nurse-manager model of ward administration will provide information needed to plan administrative support for nursing services. The participating nurses will be asked to initial a consent form and fill out a short background form. The ward manager, area nursing coordinator, and head nurse will be interviewed upon the impact of the unit service management support system to nursing activities. The investigator will observe a closely matched patient care unit at the Naval Hospital, also for one week. The data will be summarized in percentages of totals in categories of nursing activities, and compared for statistical differences.

**BENEFIT:** The study of nursing activities will help the Naval Hospital determine if their nurses would benefit from the unit service management model of hospital administration. The participants will have the opportunity to participate in a research project, and may obtain feedback on their own individual activity sampling sheet, if desired.

(USE CONTINUATION SHEETS AS NEEDED)

**DURATION OF STUDY:** The investigator will observe the professional nurses on a ward for one week, 0645-1530 Monday through Friday. The consent form and background form will take less than 10 minutes to fill out. The interviews with head nurse, ward manager, and area nursing coordinator will take approximately one hour.

**RISKS, INCONVENIENCES AND DISCOMFORT:** The data gathered will be held confidential for 10 years. Names will be used in the study results. The purpose is not to evaluate the quality of work but to record the type of activities nurses are doing; therefore, there should be little hindrance to the working professional nurses as they pursue their duties. The interviews will be scheduled at the convenience of the participating individuals.

**CONFIDENTIALITY OF RESEARCH RECORDS:** No records will be maintained that would identify the participants.

**INVESTIGATIONAL DRUG/DEVICE:** None

**SAFEGUARDS:** None required

**ALTERNATIVES TO PARTICIPATION IN THE STUDY:** None required

**CIRCUMSTANCES UNDER WHICH YOUR PARTICIPATION MAY BE TERMINATED WITHOUT YOUR CONSENT:**

- a) Health conditions under which your participation possibly would be dangerous
- b) Other conditions which might occur that would make your participation detrimental to you or your own health

**COST TO YOU FROM PARTICIPATION:** None

**SIGNIFICANT NEW FINDINGS:** Any significant new information regarding new findings that develop during the study will be made available to you.

**NUMBER OF SUBJECTS IN THE STUDY:** Approximately 40.

**UNFORESEEN RISKS FROM PARTICIPATION:** Not applicable to administrative study.

SIGNATURE OF VOLUNTEER	DATE SIGNED	SIGNATURE OF LEGAL GUARDIAN (if volunteer is a minor)
PRESENT ADDRESS OF VOLUNTEER	TYPED OR PRINTED NAME AND SIGNATURE OF WITNESS	DATE SIGNED

APPENDIX H  
FORMULA FOR  
HYPOTHESIS TESTING OF THE  
EQUALITY OF TWO PROPORTIONS

The formula below is the hypothesis test of the difference in proportions of activities of the two models studied. Terms are abbreviated as follows:

W = WRAMC	D = Direct patient care
B = NHBETH	OD = Other direct care
n = number	I = Indirect patient care
$\bar{p}$ = proportion of population	OI = Other indirect care
$\bar{p}$ = proportion average	$H_0$ = null hypothesis
p = proportion of sample	$H_A$ = alternative hypothesis

Level of Significance is 0.05

$H_0: P_{W(D)} = P_{B(D)}$        $H_A: P_{W(D)} \neq P_{B(D)}$

$$\bar{p} = \frac{\bar{p}_{W(D)} \times (n_W) + \bar{p}_{B(D)} \times (n_B)}{n_W + n_B} \quad \text{Example (Direct Care)}$$

$$= \frac{.1657(1173) + .163(1473)}{1173+1473} = .164$$

$$z = \frac{[\bar{p}_{W(D)} - \bar{p}_{B(D)}] - [p_{W(D)} - p_{B(D)}]}{\sqrt{\frac{\bar{p}(1-\bar{p})}{n_W} + \frac{\bar{p}(1-\bar{p})}{n_B}}} = \frac{.1657 - .163 - 0}{\sqrt{\frac{(.164 \times 1 - .164)}{1173} + \frac{.137}{1473}}} = .193$$

calculated z.193 is less than critical z 1.96 (for alpha = .05)  
the evidence fails to reject the null hypothesis; there is insufficient evidence to conclude that the proportion of direct care nurses' activities at WRAMC is equal to those at NHBETH. We conclude that the direct care activities are the same.

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